

CHAPTER 9 : A COMPARATIVE ANALYSIS OF LAND USE DISTRIBUTION - TWO CASE STUDIES

9.1 SINGLE STOREY HOUSING

The objective of the first case study is to demonstrate the method and techniques outlined in the previous chapter by a comparison of the distribution of space in six housing layouts. Schemes displaying the simplest building forms were selected containing predominantly single storey housing. They are:

Inchview, Prestonpans, East Lothian.

Ardler Street, Dundee.

The Ryde, Hatfield, Hertfordshire.

Bishopsfield, Harlow, Essex.

Clarkhill, Harlow, Essex.

Kingstanding, Birmingham.

A designer, in producing a solution to a housing brief, will have to decide upon the relative importance of conflicting requirements. Some of the decisions he makes will influence the apportionment of space within the housing layout and will contribute to the overall quality of the estate.

Unlike internal space standards for dwellings, which are well known and accepted, there is little established information and guidance for designers in the apportionment of space in housing layouts. An examination of the distribution of land use will give greater understanding to the solutions designers have produced to meet the conflicting demands of modern housing. The first objective has therefore been to establish the actual areas devoted to certain categories of use in the selected schemes. The second objective has been to demonstrate the range of differences in standards achieved between the schemes, each of which differs from the others in detail design.

The method employed is that of desk appraisal and measurement using section 5 of the form (see Appendix 1). Scale drawings of all the selected schemes are obtained from the architects and their accuracy verified by

An Evaluation of Housing Layouts with Particular Reference to the Function and Performance of the Designer

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PREFACE

The main concern of this study is with developing methods of evaluating the quality of housing layouts, in particular with discovering ways of influencing quality through improving the performance of the designer. After an examination of the function of the designer within the various house producing organisations, the original intention was to compare his performance in each of the main design sectors. In particular the aim was to establish the degree of divergence which exists amongst designers in their attitudes to, and knowledge of, housing that could be related to the design organisation within which they worked. The underlying hypothesis is that the organisations in which designers work influence the way they perform and that designers working within different organisations would display divergent objectives, knowledge and attitudes towards housing design, which would be related to the general motives of their particular organisations. The first tests, however, with a representative sample of designers showed that they were very fluid in their movements between employment in organisations in different design sectors and that there was no particular type of architect likely to occupy this role in the different design sectors. What did emerge from these tests was that there was general agreement amongst designers about what constituted quality in housing and in their personal design objectives. In addition the designers displayed an ignorance of published information on housing layouts and developments. The original idea of developing techniques to measure the performance of designers in performing controlled tasks was therefore modified, and the main emphasis of the study became to examine the performance of the designer through the success of completed schemes. It becomes evident that the performance of the designer cannot be isolated from his interaction with the constraints of his design organisation, brief, site conditions, etc. and the only possible way of measuring this total performance is through a comprehensive evaluation of completed schemes. The thesis begins with an outline of the historical development of housing from the nineteenth century to the present day. The role of government

in housing is traced from its early intervention to house the 'working classes' decently, to the recognition of a sense of national responsibility for housing that has slowly and reluctantly emerged in the last decade. The development of housing legislation to meet immediate situations has moulded the framework within which new housing is at present provided. The provision of new housing can best be categorised according to the agencies and organisations that sponsor or provide it. The architect is involved in this provision at many levels, from the design of individual dwellings to the planning of new communities. Their function and the degree to which architects are involved varies considerably between these organisations. The public housing sector is meeting its statutory obligations to rehouse populations from clearance and development areas and in particular is the principal participant in new towns and town expansions. The private sector is meeting largely unplanned population growth and movement in the suburbs and outer urban areas. These two sectors are meeting quite different needs and this is reflected in the architect's brief in several ways; in particular in the different social backgrounds and styles of living of the consumer. The function of the architect is examined against the differing objectives, motives and attitudes of the agencies and organisations that collectively form the principal housing sectors. The architect plays quite different roles in each of these sectors. Whilst he has been largely responsible for forming the standard of post war public housing, his involvement in private housing has been negligible. To the consumer these sectors represent quite separate entities. Although the majority of people still aspire to be owner occupiers, the standard of public housing is in many cases higher than that of private. The divisive nature of the present situation is aggravated by the way the government discriminates against the private landlord through the present system of taxation and subsidy. It is taken as axiomatic that the fundamental determinants of a housing system should be people's preferences. If a reasonable range of choice is therefore to be kept open alternative forms of tenure need encouraging. The basis for one such form already exists in the housing society and tenant co-operative movement. Although developed to sophisticated levels abroad,

the movement as at present constituted makes only a small contribution in Britain. Its expansion could take many forms to suit a variety of circumstances, from those of local householders at one extreme to public corporations at the other. The principles of joint ownership and participation, together with the economic and administrative framework of housing societies allow architects to function in a way which is conducive to producing a better quality of housing.

From this examination of the function of the architect a framework of design situations is identified to enable a comparative study of designers to be made. What emerged from initial investigations was, however, that the movement of designers between organisations was such that the original sample selected would have been representative of a different range of design situations in a short space of time. There was agreement amongst designers of what constituted quality in housing and an ignorance of current theories and recent housing layouts. The quality of a housing area depends upon the extent to which it satisfies the requirements of its inhabitants. If the overall quality is to be improved, then the feedback stage of design activity needs to become standardised and externalised. A form of appraisal and measurement is developed which is based upon describing the critical characteristics of any housing layout and which allows all aspects of housing layout design to be comprehensively evaluated. The assessment of the quality and usefulness of completed housing schemes gives a measure of the performance of the designer.

To demonstrate the potential of appraisal and measurement three case studies were carried out involving seventeen housing layouts. The first study examined how the distribution of space for different functions varies in even the simplest form of single storey housing. The second study, which is described in detail in the thesis, relates the spatial distribution of two storey housing to the particular design situation within which it has been produced. Eight estates are analysed which each represent typical designer/client relationships. Widely different approaches to

building form and land use are apparent when looking at estates in both these first studies. The availability of comparative data and comment on this single aspect of housing layout alone would be a useful aid to designers who are faced with similar problems. However, whilst the differing distribution of space within estates gives an indication of some of the priorities adopted by the designer, the actual quality of housing is not a simple derivative of these physical areas.

The third and final case study develops the appraisal and measurement form a stage further by relating the degree of user satisfaction to the different spatial distribution of four schemes produced by one design organisation. Whilst social surveys can provide useful information about users' opinions and their own accounts of experience and activities, the direct observation of the frequency, duration and pattern of the users' behaviour can offer useful guidance to the designer. In the two previous studies the problem of the motor car and the provision of varying degrees of pedestrian/vehicular separation emerged as being a major influence on the distribution of space within housing layouts. By a method of direct observation coupled to appraisal and measurement these aspects of one traditional and three traffic separated housing layouts are evaluated.

This study was originally prompted by my involvement in a research project undertaken jointly by the Architecture Research Unit and the Department of Architecture. This project proposed the establishment of a national housing intelligence bank as the basis of a service for architects operating in all sectors of housing design. The concern of this study is therefore complementary to the broader aims of the joint project. The fieldwork and observations for the case study described in Chapter 10 were carried out jointly with Duncan Stirling and a separate report describing this has been published by Codicote Press for Stevenage Development Corporation.

I am most grateful to the Architecture Research Unit for the support which gave me the opportunity to undertake this work and to both my supervisors, Mr. P. F. Crofts and Mr. C. C. Robertson, for their guidance. My thanks are also due to the many people who have given their time and advice at various stages of this study.

Chapter 1	: <u>Introduction to part one</u>	1
1.1	: The architect and the client	1
1.2	: The architect and the design of housing	2
1.3	: The main housing sectors	4
Chapter 2	: <u>Housing policy</u>	5
2.1	: The housing problem	5
2.2	: Housing policy before 1920	6
2.3	: Housing policy between the wars	7
2.4	: The housing situation in 1939	11
2.5	: Housing policy between 1945 and 1951	12
2.6	: Housing policy between 1951 and 1965	15
2.7	: Housing policy between 1965 and 1970	22
2.8	: The housing situation in 1970	27
Chapter 3	: <u>The public housing sector</u>	36
3.1	: National policy and public housing	36
3.2	: Local housing authorities	40
3.3	: The organisation of local authorities	44
3.4	: Consortia of local authorities for housebuilding	53
3.5	: The architect in local government	56
3.6	: Private practice and local government	57
3.7	: The new towns and the new towns commission	64
3.8	: Statutory housing organisations	68
3.9	: The National Building Agency	70
Chapter 4	: <u>The private housing sector</u>	74
4.1	: The financing of private housing	79
4.2	: The housebuilding industry	84
4.3	: The relative efficiency of public and private housebuilding	88

4.4 :	The standard of private housebuilding	90
4.5 :	The design of housing in the private sector	92
4.6 :	The National House Builders Registration Council	96
4.7 :	Standards in the private and public sectors	97
Chapter 5 :	<u>Housing Societies and Tenant Co-operatives</u>	100
5.1 :	The housing society movement	100
5.2 :	The housing corporation	101
5.3 :	Types of housing societies	103
5.4 :	Background to the work of Housing Societies	106
5.5 :	The functioning of housing societies	107
5.6 :	The architect and the design of housing society schemes	109
5.7 :	The future of the housing society movement	113
Chapter 6 :	<u>An examination of designers in different design situations - a pilot study</u>	116
6.1 :	The pilot study: Initial Interviews	120
6.2 :	The second Interviews	128
Chapter 7 :	<u>The architect and the design of housing</u>	134
7.1 :	The appraisal and measurement of housing	134
7.2 :	The complexity of housing design	139
7.3 :	The design activity in housing	141
7.4 :	Appraisal and measurement in design activity	143
Chapter 8 :	<u>The method of appraisal and measurement</u>	147
8.1 :	The characteristics of a housing layout	147
8.2 :	The structure of the appraisal and measurement form	147
Chapter 9 :	<u>A comparative analysis of land use distribution - two case studies</u>	157
9.1 :	Single storey housing	157
9.2 :	Land use distribution and the design situation	159

9.3 : The comparative analysis	173
9.4 : Analysis of areas per bed space	175
9.5 : Analysis of distribution of site area	182
9.6 : Summary	185
Chapter 10 : <u>The relationship of land use distribution and user satisfaction in housing layouts</u>	188
10.1 : Social surveys and direct observation techniques	188
10.2 : A comparative study of traffic separated housing layouts	192
10.3 : The desk analysis	202
10.4 : Site observations and interviews	210
10.5 : Conclusions	269
Concluding remarks	275
Appendix 1 : Housing Appraisal and Measurement Form	283
Appendix 2 : House plans for pilot study	351
Appendix 3 : Comparative analysis -. single storey houses	364
Appendix 4 : Observation tables	370
Bibliography	376

TABLE OF ILLUSTRATIONS

Page

2.1	Permanent houses built in England and Wales 1919-1939	9
2.2	Permanent houses built in England and Wales 1945-1969	17
2.3	Millions of houses; Great Britain, By tenure 1968	29
2.4	Household income and size: Great Britain 1967	32
2.5	Weekly rents of two and three bedroom dwellings in selected areas	34
3.1	Organisation of the public housing sector	37
3.2	Organisation of the Ministry of Housing and Local Government	38
3.3	Output of housing by organisation; Great Britain 1969	41
3.4	Housing Acts at present operative	43
3.5	Typical organisation of a local authority	46
3.6	Distribution of architects by category of employment	58
3.7	New commissions : private architects 1964 to 1969	59
3.8	Typical organisation of a new town.	65
3.9	Structure and activities of the National Building Agency	71
4.1	Permanent houses built in England and Wales 1923-1969	76
4.2	New house completions in Great Britain 1964-1969	78
4.3	Mortgage advances in the United Kingdom	80
4.4	Number of firms in the construction industry ; by trade and size April 1969	86
4.5	The relative importance of different types of construction work in Great Britain	87
4.6	Areas of private housebuilders plans in comparison to Parker Morris space standards	99
5.1	Growth of Housing Societies 1961-1969	103
5.2	Two housing society schemes	112
6.1	The main design situations	119
6.2	Summary of ranking of house plans - Initial Test	125
6.3	Personal objectives of the designers	127
6.4	Summary of ranking of house plans - Second Test	129
6.5	Summary of ranking of design objectives	130

7.1	Important factors in measuring the quality of housing	136
7.2	The complexity of housing design	140
7.3	The design activity	145
8.1	The structure of the appraisal and measurement form	148
8.2	Methods of appraisal and measurement	153
9.1	Layout of Fieldend, Twickenham	165
9.2	Layout of Trotts Hill, Stevenage	166
9.3	Layout of Primrose Hill, Birmingham	167
9.4	Layout of Woodway Lane, Coventry	168
9.5	Layout of Parkhill Rise, Croydon	169
9.6	Layout of Ravenscroft Road, West Ham	170
9.7	Layout of Walsgrove, Coventry	171
9.8	Layout of Milton Road, Haringey	172
9.9	Basic analysis : two storey layouts	174
9.10	Total habitable area per bedspace	176
9.11	Analysis of areas per bedspace	177
9.12	Square feet per bedspace	178
9.13	Standard of provision for the car	181
9.14	Ground area analysis	183
10.1	Proposed levels of appraisal of user satisfaction	191
10.2	Dwelling types on the four estates	197
10.3	Layout of Campshill, Chells	198
10.4	Layout of Sishes End, Pin Green	199
10.5	Layout of Fairlands, Pin Green	200
10.6	Layout of Trotts Hill, Pin Green	201
10.7	Standard of provision for the car	204
10.8	Analysis of areas per bedspace	205
10.9	Ground area analysis	208
10.10	Total number of parked cars observed	216
10.11	Average number of cars parked throughout the day	216

10.12	Observed parked cars : Campshill	217
10.13	Observed parked cars : Sishes End	218
10.14	Observed parked cars : Fairlands	219
10.15	Observed parked cars : Trotts Hill	220
10.16	Percentage of parked cars in parking areas	221
10.17	Typical garage plans : Sishes End	225
10.18	Adult observations on the four estates	233
10.19	Observed pedestrians : Campshill	235
10.20	Observed pedestrians : Sishes End	236
10.21	Observed pedestrians : Fairlands	237
10.22	Observed pedestrians : Trotts Hill	238
10.23	Observations of children	243
10.24	Average weekday observations	251
10.25	Typical garden sizes	256

1.1. THE ARCHITECT AND THE CLIENT

It is only recently that architects have questioned their function in a modern, industrial society. More than most other professions they saw themselves fulfilling a role of immense breadth and responsibility. In fact, the present practice of architecture, in both public and private sectors, is an anachronism; a largely unchanged survival from the days of wealthy and aristocratic patrons, one-off buildings, a craft industry and the artistically inclined, intuitively directed gentlemen in private practice.

To begin with, the nature of the client has changed. Traditionally, the architect as a designer, worked only for a class whose ideas were usually compatible with his own. The client and the architect shared a common background and cultural pattern, but today this is virtually lost. Instead the designer is faced with committees whose requirements are those of the 'masses', or the corporation they represent. Whereas the briefing and design tasks once consisted of asking a man what he wanted, and then giving it to him, this is now no longer possible. It is becoming necessary to employ social scientists to explore society's needs of its buildings. Those needs are becoming more and more complex and difficult to provide and are made more so by the increasing technical nature of life, by society's reliance on machines, and by the scale and speed at which provision is required.

The architect is now faced with two classes of client, the private individual and the individual acting in his capacity as public official, ^{and the community as a whole.} The income, education, ambitions and background of the private client are likely to resemble those of the architect. In this situation the architect is likely to be able to interpret successfully the wishes of his client in the light of technological possibilities of which the client is unaware. When the public is client, through one or more of its officials, it is possible for the architect to have a highly specialised knowledge of well defined objectives and the best current means to obtain them, as in the architecture of schools and hospitals. Increasingly, however, the architect is being

asked to improve the housing conditions of the lowly paid wage earner, the working class pensioner, etc., whose values will bear no relationship to those of the designer.

The designer is inevitably trapped by a pattern of attitudes to social behaviour which condition all he does. But the user of the buildings will also have a set of beliefs and opinions which may conflict with those of the designer due to their previous conditioning. It is a basic proposition of sociology that values, and the way they are placed in an order of priority are not uniform between groups with different social experiences within a given society.

Thus we have a situation where two sets of values will be applied to assess a design; on the one hand there are the values of the designer which are reflected in the form of the buildings. On the other hand there are the values which the users of the scheme will attempt to realise in the environment created by the designer. In housing this analysis can be applied to both private and public sectors. If accepted it becomes apparent that the function of the architect must change.

1.2. THE ARCHITECT AND THE DESIGN OF HOUSING

The architect is involved in housing at many levels, from the design of the individual dwelling to the planning of whole new communities.

Barnet¹ identifies six levels or stages of involvement :-

1. National Policy
2. Regional assessment
3. Urban plan
4. Local development
5. Group association of dwellings
6. Individual dwelling

The primary concern of this thesis is with levels four and five, the design of housing layouts.

The design of housing layouts is not a new problem. Over the past sixty years a great many housing layouts have been designed, built and lived in and as a result a vast body of information and knowledge relevant

to the resolution of such problems has accumulated. It is generally known that a housing layout consists of a number of dwelling units grouped in a certain spatial arrangement, that these dwellings need to be serviced, that adequate environmental standards must be achieved, that problems of access and circulation arise, that children's play should be provided for, and so on. Each of these is a problem in itself comprising a group of design factors. These problems are however at the same time so closely related to each other, that the factors affecting them bear certain relationships to each other and exhibit elaborate patterns of interaction.

In addition to experience accumulated from the identification of such problems, we also have, from past experience, examples of the different ways in which different designers treated these problems. For example in considering the problem of conflict between pedestrian and vehicular circulation, design solutions in precedent exhibit examples of the vertical separation of the Cumbernauld type town centre, the horizontal separation of the 'Radburn' type layouts found in so many of the new towns, and the unsegregated mixture of the traditional street. In addition there is a wide combination of all of these. In the design of layouts and the spatial distribution of dwellings there is a wide variety of arrangements, from the suburban carpets of 'semis' to the multi-storey point and slab blocks of the post war era.

The performance and function of the designer are therefore affected by many things, the attitudes and motives of the organisation within which he works, his own attitudes to housing, the resources available to him and his organisation, etc. The architect, as a designer of housing, is involved in all the agencies and organisations that produce housing. The degree of involvement and the function of the architect, varies considerably with the different attitudes and motives of the various organisations. Broadly speaking the factors which influence the design of a housing site can be divided into two parts; the administrative or procedural factors deriving from the organisation within which he operates; and the creative or generative factors to be manipulated by the architect in his design capacity.

1.3 THE MAIN HOUSING SECTORS

New or improved housing in Great Britain meets a variety of needs, increases in population and household formation, reduction of overcrowding or multiple occupation, improvement or replacement of older and unfit housing, and the replacement of houses that have had to be demolished because of a demand on the land for other uses. These needs are further complicated by regional variations and by population movement generally. This movement is still largely unplanned although the proportion accounted for by new towns and town expansions is increasing. Any planned movement is catered for by local authorities and other public bodies, whereas the unplanned movement is met by the private house market. The public house building sector is meeting its statutory obligations to rehouse populations from clearance or development areas as well as developing new towns and expanding existing ones; while the private sector is meeting the demands of unplanned population movement, population growth and household formations in the outer urban areas, suburbs and commuter belts. That these sectors are meeting quite different needs is evident and that these differences will be reflected in the architects functioning in several significant ways.

It is proposed initially to discuss in greater detail the context within which the architect as a designer of housing is working. The next four chapters of the thesis are therefore concerned with examining the organisations that collectively produce the nation's new housing. This examination provides the framework of design situations which is the basis of the comparative studies that are carried out in Chapter 6. Organisations in the public and private sectors are dealt with in Chapters 3 and 4 respectively, whilst Chapter 5 deals with the developing housing society and tenant co-operative movement. As a prelude to this the nature of the housing problem is discussed and the development of housing policy over the past century is traced.

2.1. THE HOUSING PROBLEM

Since the end of the second world war the solution of the housing problem has been one of the principle aims of domestic policy. It has been one of the most widely publicised social problems ever since the early nineteenth century. It is a vast and complex problem, comprising economic, social and political issues that can be discussed at different levels ranging from the national to the local.

The present situation has been shaped mainly by long term changes in the economy and in the population, and partly by past housing policies. The United Kingdom, with a population density of 550 persons per square mile, is one of the most densely populated countries in the world. The increasing growth in this population alone, increases the need for houses, but at the same time living standards are rising. The effects of increased prosperity have also added to the problem. The marriage rate has been stimulated by higher incomes and people are marrying younger and having children sooner. The greater financial independence of young people is resulting in more separate households being formed; between 1911 and 1951 there was a 19 per cent increase in total population in Great Britain, but an increase of about 60 per cent in the total number of households formed. Older people are also living longer and single people increasingly want their own place to live. Due to rising standards there is both a growing demand for separate accommodation by people who are sharing, and for better housing by those who already have a home. These factors which contribute to the total housing problem are working simultaneously with others. The greater part of the population is concentrated in a few very large urban areas. The decline of industry in some of these areas, particularly the north and Wales coupled with the rapid economic growth of London, the south and the midlands, have combined to feed the drift of the population towards the most prosperous areas. Great areas of slum housing, mostly built during the period of rapid industrial expansion of the nineteenth century, are in need of replacement.

The housing problem is not one, but several, and is frightening in its size and complexity. It can only be solved by a comprehensive housing policy. Housing policy has to deal with many factors : obsolescence, the slums, overspill, national distribution, available resources, land, etc. These are of course not new problems and various attempts have been made to solve them previously. It is necessary to briefly trace the development of housing policy, before examining the objectives of present policy.

2.2. HOUSING POLICY BEFORE 1920

Early government intervention and legislation, (prior to the first world war), was directed towards improving sanitary conditions and to preventing the spread of disease. Although from 1851 local authorities had the power to build houses, few did and there was no pressure to compel action. The first important Public Health Act was published in 1875 which established building standards for new housing. This was rapidly followed by a series of model building byelaws published by the local government board in the late 1870s. Over $3\frac{1}{2}$ million dwellings of Britain's current housing stock were built before this legislation.²

The only other significant government action prior to 1914 was the Small Dwellings Acquisition Act of 1899, which permitted local authorities to lend money for house purchase by owner occupiers. By and large early legislation was not effective (except in larger towns) and was fragmentary in its nature. It is worth noting that this period was very productive. Between 1875 and 1878 about 120,000 houses were built on average each year and in the first five years of the twentieth century annual output reached 150,000.

The legislation of the later part of the nineteenth century did however have two distinct effects. Firstly, it established the principle that the State could interfere with property rights in the interests of public health; and secondly by improving the standard of housing it widened the gap between the rent paying capacity of working class families and the economic price at which working class dwellings could be provided.

The first world war marks the beginning of significant direct government participation in housing. By 1914, there were over eight million houses in Britain, 90 percent of which were rented privately and 10 per cent of which were owner occupied.¹ The advent of the first world war meant house building virtually ceased and rents began to rise. This provoked direct government action and in 1915 the passing of the first Rent Restriction Act. It was intended to be temporary and lapse six months after the end of the war. By then, however, there was an acute housing shortage (over 900,000 more households than dwellings) and a building industry in the process of reorganisation. The Rent Restriction Act was therefore extended, and more important, the Town and Country Planning Act of 1919 made it obligatory for local authorities to prepare plans to meet their own local housing needs, and housing subsidies were introduced both for local authorities and private builders. This intervention of government in the provision of working class housing was also not meant to be permanent. The housing shortage was thought at the time to be solely a result of the first world war. However, once established, the responsibility of government in housing has been hard to withdraw and though subsequent political climates have influenced the degree of involvement by the state the day of the 'Council House' had begun. The 'housing policy' of every party has figured prominently in all elections ever since.

2.3. HOUSING POLICY BETWEEN THE WARS

In the twenty years between the two wars, (even when the backlog existing at the beginning of the period is taken into account) the overall housing situation improved considerably. During this period the overall population increased by nearly 4 million and the number of households by more than 2 million. A total of 4.3 million houses were built consisting of 1.3 million built by local authorities and 3 million private houses built

1. From the excess of households over dwellings this shows an apparent housing shortage of over 300,000 in England and Wales.

for owner occupation. Rent control was originally extended until it applied to 98 per cent of all unfurnished tenancies and then reduced again until it covered less than 30 per cent at the end of the period.

The physical effect of these years can be clearly seen. Estates of 'semis' built at densities of between eight and twelve houses per acre became commonplace, easily recognisable from the prewar terraces of 40 houses per acre. The 1919 Act also fixed minimum standards for new housing which were well above the normal conditions of working class housing.¹ Though standards were soon reduced from the minimum 950 sq. ft. stipulated in the Act the majority of three bedroom houses built by local authorities had areas of 750 sq. ft. to 850 sq. ft. It is interesting to note that during this period baths became a statutory requirement for both subsidised housing (in 1923) and for non subsidised housing (in 1936). The number of houses completed in England and Wales between 1919 and 1939 is shown in Figure 2.1.

Subsidised Housing

The 1919 Town and Country Planning Act obliged local authorities to provide for working class housing needs to the extent that these needs could not be met from other sources. It also introduced a Treasury subsidy which extended to private enterprise housing. The Act did not however limit the amount of the loss which could fall on the Treasury and therefore provided no incentive to local authorities to rigorously control building costs. Only about 170,000 houses were completed under this Act before this economic weakness caused it to be withdrawn in 1921. As can be seen from Figure 2.1. this withdrawal caused local authority building to diminish rapidly until the Housing Act 1923 reintroduced subsidies in a modified and more rational form.²

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1. The standards proposed in the Tudor Walters Report of 1918 were for a minimum of 855 sq. ft.
 2. The 1923 Act limited the subsidy to £6 per house for twenty years or a lump sum of £75.

Figure 2.1 : Permanent Houses Built in England and Wales, 1919-1931

Year ending September 30th	Local Authorities	Private Builders	Total
1919-20	3,502)	73,099	210,228
1921	47,651)		
1922	85,976)		
1923	25,241	53,497	78,738
1924	14,544	94,947	109,491
1925	32,090	126,936	159,026
1926	61,402	136,182	197,584
1927	113,274	159,955	273,229
1928	59,220	107,195	166,415
1929	60,367	143,076	203,443
1930	52,017	109,682	161,699
1931	63,288	131,656	194,944
1932	68,490	133,486	201,967
1933	49,213	169,100	218,313
1934	53,342	260,327	313,669
1935	43,345	275,299	318,644
1936	64,874	274,654	339,528
1937	71,339	265,795	337,134
1938	88,330	252,548	340,878
1939	78,952	201,616	280,568
Total 1919-1939	1,136,457	2,969,050	4,105,507

Source : Housing Returns. M.H.L.G.

The only qualification for subsidy was that the houses achieved specified minimum standards of amenity and size, and the subsidy was available to both local authorities and private builders. This remained in force for a year until the Housing Act 1924, whilst increasing the subsidy rates introduced additional conditions.¹ Under this Act all housing subsidies were to be restricted to housing built for letting, and in the case of private builders the rents had to be comparable to controlled rents.

The subsidies introduced in the 1924 Act remained in force until 1933 when they were withdrawn. The actual rate of local authority building however continued at the same pace under the Slum Clearance Act 1930 and the Housing Act 1935. Although private subsidised building had virtually ceased by 1930, private enterprise had contributed some 400,000 houses under these Acts compared with some 500,000 built by local authorities. After the abolition of subsidies in 1933 the slum clearance policy became the only centrally supported local authority policy. The thirties were a period of high unemployment, depression and financial crisis. The expenditure of money on subsidised housing became a subject of severe criticism and a policy of providing subsidy only for families displaced by slum clearance became politically acceptable. The responsibilities of local authorities were now confined to dealing with only the worst possible housing conditions, though they still had the power to supplement private enterprise building where necessary by providing 'unsubsidised' housing.

This was until the end of the second world war virtually the end of local authority housing provision for general needs although other significant measures were introduced. The 1936 Housing Act consolidated into a single housing account all expenditures on houses built with subsidies under the 1919, 1923 and 1924 Acts. Rents and subsidies were now regarded as a common pool, and the rents of individual houses could be adjusted on a common basis. This new system freed local authorities from the complex system of rent control which had operated until this

1. It raised the annual grant to £9-£12.5 and increased the period to forty years.

time, and also meant that subsidies could be concentrated on needy tenants irrespective of the legislation under which their houses happened to have been built. This has had important repercussions on council house subsidies ever since.

Houses built for owner occupation

By 1939 between twenty and twenty-five per cent of households were either buying or owned their houses, a radical change from the prewar position. The primary reason for this arose because of the shortage of houses for letting due to rent control, and the insufficient supply of local authority and private subsidised housing. In addition the profitability of housing as an investment for private speculators diminished and builders had to look for alternative clients. Lastly the period between the wars saw the development of the Building Societies providing adequate and available finance which brought house purchase within the reach of many more households. By the outbreak of the war $1\frac{1}{2}$ million house purchasers owed building societies over £700 million and were lending at the rate of £130 million a year. Although local authorities had powers to lend money to encourage owner occupation few did, and their volume of lending between the wars was not of any significant proportion.

Until 1930 the rate of unsubsidised private building was directly comparable to subsidised building, approximately 70,000 a year. But in the thirties, despite the severe depression, unsubsidised private building surged ahead until it reached a peak of 292,000 dwellings per annum, in 1935. Of the 3 million houses produced by private builders between the wars, over 2.5 million were unsubsidised.

2.4 THE HOUSING SITUATION IN 1939

In 1939 the overall housing situation was satisfactory from the point of view that there existed a reasonable balance between households, at nearly 12.75 million, and dwellings at over 12.50 million. There were still regional differences, aggravated by population movement to

areas of high employment.¹ Out of the country's total housing stock there were 1.25 million council houses, where there had been none in 1919. In addition 4 million working class houses were subject to rent control. The remaining 60 per cent of the housing stock comprised the free market, being either for rent or sale.

It is interesting to speculate on the result on housing policy had not the second world war commenced. If the rate of private building could have been maintained and with a continuing growth in prosperity, the need for large scale subsidising of housing would have fallen and decontrol of working class housing would have become possible. The role of government could then have probably been confined to minor areas of relatively higher housing needs, and the present social problems associated with housing may have been averted.

2.5 HOUSING POLICY BETWEEN 1945 and 1951

By the end of the second world war the housing shortage was of enormous dimensions. During the war building had virtually stopped. In addition 208,000 houses had been completely destroyed with a further 250,000 being rendered unfit for habitation, and a further 250,000 being severely damaged. The population had also increased by 804,000 households. The total housing shortage in 1945 was therefore at least 1,350,000 dwellings,² a far more serious situation than at the end of the first world war. This estimate does not take account of the number of houses becoming naturally obsolete and in need of replacement. As at the end of the first world war the strength of the building industry was severely depleted of manpower and of materials.³

The initial aims of government housing policy was therefore to get building under way again and as after the first world war, the main

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1. Seventy per cent of the country's population growth was concentrated in the south east and the midlands. These were regions where house building was the greatest.
 2. This takes into account the small housing shortage at the commencement of the war.
 3. The building labour force was in 1945 approximately a third of its 1939 strength of a million men.

instruments were to be subsidised local authority building coupled with rent control. Immediate priority was given to short term measures introduced to get the industry going again and to regulate the usage of limited resources. The procedure for compulsory purchase was temporarily simplified to enable the minister to confirm orders without a public local inquiry or hearing.³ Local authorities were given powers to acquire land for temporary housing and the Minister of Works was authorised to arrange for the production and erection of factory made housing.⁴ Building controls required that licenses be obtained even for minor repair work.

The main housing effort was however quickly directed to providing new permanent housing. The labour government which won the first post war election restricted subsidies to local authorities except in some rural areas.¹ The 1946 Housing Act provided more generous subsidies to be built on a more ample scale than ever before. The standard three bedroom house was to be 900 square feet plus a 50 square foot outhouse, compared to the normal prewar provision of 750 square feet. An annual Treasury subsidy of £16.5 per house was provided for 60 years, and local authorities were obliged to make a rate contribution of £5.5 making £22 in all. Further special provisions were made for poor areas, rural areas and expensive sites. The increased subsidy and lengthened period reflected the increase in building costs since 1939.

The initial drive to start new building rapidly overloaded the building industry and the national annual target of 240,000 houses had to be reduced by 40,000. Between the end of the war and 1946 about a third of a million 'family units' of accommodation had been provided : 80,000 in temporary accommodation (prefabs), 45,000 in conversions and adaptations; 107,000 in repaired, unoccupied war damaged houses; 3,000 in temporary huts; 9,000 in service camps; 25,000 in requisitioned houses; and 52,000 in permanent new houses. In

1. Their main opponents at the general election, the conservative party, were proposing if elected to reintroduce subsidies to both private builders and local authorities alike, as was done after the first world war.

addition over one million occupied dwellings had been repaired. In 1947, the first year of the real permanent housing programme 127,541 houses were completed. In 1948 this increased to 206,559 and during the next three years production was held steadily at just over 170,000. The Housing Act of 1949 introduced two important changes in housing policy which were to have long term importance. The Act formally removed the restrictions on the social class for whom authorities might provide. Up to this time local authorities had been restricted in providing housing for the 'working classes'.¹ Local authorities were now entitled to build for anyone in need. The significance of the removal of this restriction lies in the general acceptance of wider and more important role of local authorities in housing. Local authorities now had a duty to examine the overall housing situation of their districts and not just that of lower income groups. The second provision made by the 1949 Act introduced new powers to enable local authorities to give improvement grants to private owners wishing to improve or convert their property. In addition the local authorities powers to lend money under the Small Dwellings Acquisition Acts were extended.

As the main emphasis of post war building was directed towards those in greatest need private housebuilding was necessarily limited. The local authorities could by allocation of building work force builders into areas of low profitability and were the only organisation through which policy could be planned. Their status was explicitly stated by Aneurin Bevan, the Minister of Health in 1946.⁵

'If we are to plan we have to plan with plannable instruments, and the speculative builder, by his very nature, is not a plannable instrument... We rest the full weight of the housing programme upon the local authorities, because their programmes can be planned, because in fact we can check them if we so desire to...'

Private building up to 1949 was limited so that only the smallest and

1. The term working classes had only once been given a statutory definition, in a subsidiary Act of 1903.

cheapest type of house could be built. Private builders were gradually given greater freedom although intervals of tighter control existed during the economic crises of 1947 and 1950.¹ In 1948 local authorities were allowed to use private builders for one fifth of their total housing allocation, and in 1951 this proportion was raised to a half. Even so of the 900,000 permanent houses erected by the end of 1951, some 174,000 were privately built.

One other significant development in subsidies in this period emerged, namely the setting up of new towns. In the period between the wars private enterprise had produced Letchworth and Welwyn Garden City which were sufficiently successful to establish themselves as models for the relief of the over populated conurbations. In 1945 a committee headed by Lord Reith was established to investigate and recommend principles for the establishment of new towns. The Reith Committee recommended a separate government sponsored corporation for each new town, directly financed by the Exchequer. Development corporations were subsequently set up in the New Towns Act 1946, and given powers to carry out building, acquire land and property, and provide all necessary public services. The corporations were not local authorities and their boards were government appointed. In addition they were to be self supporting and their finance was very similar to local authorities. Their subsidies apart from the outright capital grants of the type given to local authorities, consisted primarily of borrowing all their financial requirements from the government on the same terms as the government itself could borrow.

2.6. HOUSING POLICY BETWEEN 1951 AND 1965

Although by 1951 nearly a million permanent houses had been completed there still existed an acute regional housing problem. The stock of

1. M.H. Circular 97/49, November 16th 1949, called for a reduction of £35 million per annum in the housing programme but 'by reducing the number of licenses issued for the erection of houses by private persons, we shall secure that the local authority programme for the building of houses to let can proceed without any marked reduction'.

housing in Great Britain was 13.5 million, an actual shortage of one million dwellings over households.¹ The areas of greatest shortage were Wales, the Midlands, the South, and most of all in London and the South East.

The conservative government that came to power in 1951 made an election promise of 300,000 houses a year. There was general dissatisfaction with the housing situation due to the continuance of rent control, an unsatisfied demand for council housing, restrictions on private building and the marked increase in house prices.

In the first four years of office, the conservative government continued the relaxation of building controls started by the labour government, and gave private enterprise more of a free hand. As a result private enterprise building increased from 21,000 in 1951 to 60,000 in 1953 and 88,000 in 1954. (See Figure 2.2.). This expansion was however coupled to a significant increase in the local authority sector. The control of local government building programmes by a system of allocations was replaced by a system of 'targets' representing their minimum responsibility. Local authorities were not slow to respond : completions rose from 150,000 in 1951 to around 220,000 in 1953 and 1954. The overall effect was that by 1953 the target of 300,000 houses a year had been exceeded and by 1956 the apparent overall housing shortage had fallen from one million to less than 600,000. These gains were a result of a combination of factors in addition to the steady elimination of building controls. The productivity of the building industry was improving, imports of building materials were becoming more readily available, subsidies increased and the standards of housing were reduced.

The end of November 1954 saw building controls being finally lifted leaving private builders controlled only by planning permission obtained from the local authorities. This produced programming problems for the government as the private sector contribution to the annual housing

1. This measure is crude as the rate of formation of households is obviously influenced by availability of accommodation.

Figure 2.2. : Permanent Houses Built in England and Wales,
1945-1969

	Local Authorities	Private Builders	Total
1945-46	21,878	30,657	52,535
1947	87,915	39,626	127,541
1948	175,213	31,346	206,559
1949	147,092	24,688	171,780
1950	145,784	26,576	172,360
1951	150,497	21,406	171,903
1952	176,897	32,078	208,975
1953	218,703	60,528	279,231
1954	220,924	88,028	308,952
1955	173,392	109,934	283,326
1956	149,139	119,585	268,724
1957	145,711	122,942	268,653
1958	117,438	124,087	241,525
1959	102,905	146,476	249,381
1960	107,126	162,100	269,226
1961	98,466	170,366	268,832
1962	111,651	167,016	278,667
1963	102,413	168,242	270,655
1964	126,073	210,432	336,505
1965	140,935	206,246	347,181
1966	151,978	197,502	349,480
1967	169,958	192,940	362,898
1968	158,453	213,273	371,726
1969	150,788	173,377	324,165
Total 1945-1969	3,351,311	2,839,315	6,180,626

Source : Housing Returns. M.H.L.G.

stock could only be the subject of speculation. This was not successful and it was found impossible to plan the national programme. In addition the local authorities were now forced to bear the brunt of any economic cut backs, a position that had been previously occupied by private enterprise.

By the mid fifties therefore the overall shortage of houses had been largely corrected, although the regional shortages still existed. In addition the actual price of houses had fallen.¹ The housing problem itself was beginning to emerge with a clearer definition - 'slums and obsolescence : the growing scarcity of building land; the neglect of inner areas of large towns and cities; the shortage of small houses, especially for old people; the resumed drift of population from the north and west to London and the South'.⁶

Housing policy had therefore to become more selective and to establish clearer aims. A major statement of government housing policy was made in November 1953 in the White Paper, 'Houses - The Next Step'.⁷ This gave a broad analysis of the country's housing problems, and of the government's 'comprehensive plan' for solving them. Briefly this was 'a comprehensive plan of repair, maintenance, improvement and demolition which covers all conditions and types of house'. This plan classified housing in four ways :

1. essentially sound
2. slum
3. dilapidated
4. needing improvement

The objectives of the White Paper were implemented through a succession of measures, the most important being the Housing Repairs and Rent Act 1954, the Housing Subsidies Act 1956 and the Rent Act 1957. The building programmes of the local authorities were reduced and the emphasis firmly placed on slum clearance. During the period 1952 to 1955 the expansion in local authority building stimulated by the conservative government, coupled with an increase in the annual subsidies, increased the total annual subsidies bill to alarming proportions.

1. This was due to a) the increased number of houses for sale, and b) the first major post war recession.

By 1954 this had reached £100 million per annum, and in April 1955 the subsidy per house was reduced by a sixth to £29.4.

In 1956 several major changes took place. The general needs subsidy was abolished altogether¹ in addition to the mandatory contribution of local authorities from the rate fund. The main exchequer subsidies were then either £22.05 per house for slum clearance or £24 for overspill population. These subsidies remained in force until February 1961 when two different rates were introduced of £8 or £24 depending upon whether the local authority could satisfy a test of financial need. Local authorities could henceforth decide for themselves on how many houses to build, though the pressures of rising interest rates, subsidy cuts and land shortages restricted their choice in the matter.

After the initial spurt from 1952 to 1955 when private builders were virtually freed from controls the total rate of building had declined to 300,000 dwellings in 1956 and 1957, to 275,000 dwellings in 1958 and 1959. These total changes are made up of a steady decline in local authority building to half the 1952-5 level and a steady rise in private building to double the 1952-5 level. One of the major reasons for this was the decline in local authority building following the withdrawal of the general needs subsidy in 1956. Pressure of demand from prospective owner occupiers also stimulated the private housebuilding industry. In 1958 for the first time since the war, private housebuilding produced more houses (124,087) than local authorities (117,438). By 1961 private builders provided over 70,000 dwellings per annum more than local authorities.

The growth of owner occupation in this period was considerably greater than the growth reflected by the rate of construction of new private houses. Many properties were purchased by the sector which had previously been let by private landlords. The proportion of non-council

1. The Minister said that 'authorities should subsidise only those tenants who require subsidising, and only to the extent of their need'..... 'using the money thus saved to build new houses. See H. C. O. R. Vol. 545 61377.

houses that were owner occupied rose from 33 per cent in 1948 to 51 per cent in 1958. Of all the houses built before 1919 over 43 per cent were owned by their occupiers⁸ and by the late fifties building societies were lending some £50 million per annum for the purchase of this stock of housing. These old houses were, of course, comparatively cheap and purchasers could obtain benefits of tax relief on their mortgage repayments. In addition many landlords found the problems managing rented property unprofitable. Before the 1957 Rent Act this was thought to be related to the low level of rents that were fixed by rent control. Even with the passing of the 1957 Act, which freed property from control upon being re-let, this trend continued. Between 1957 and 1959 in England and Wales as a whole, 12 per cent of all dwellings decontrolled became owner occupied.⁹ Since this controversial Act came into force there have been many detailed studies carried out generally demonstrating its uneffectiveness.¹⁰ They all show the continuing decline in the number of privately rented houses.

The House Purchase and Housing Act 1959 provided £100 million of government loans to approved building societies as an encouragement to owner occupation to relend on cheaper houses, which were to include pre 1919 property. An additional aim of the Act was to stimulate a higher rate of improvement of older houses. The existing discretionary grants system was supplemented by a new system of standard grants. This entitled anyone buying a pre 1919 house to a loan covering his share of the cost of providing basic amenities which were lacking in his house. Although comparatively few private landlords took advantage of these grants, owner occupiers did and by 1960 improvements reached 125,000 per annum.

The social survey report on 'The Housing Situation in 1960'¹¹ estimated the current state of housing stock and made a number of projections about need. This showed that a quarter of the 832,000 'unfit' houses in England and Wales had an estimated life of less than 5 years. This total number exceeded the official programme of demolition by nearly 400,000. On a longer term basis to replace the two million houses

needing demolition in the following 15 years, the demolition rate would need to be doubled. In addition, older houses having a life of more than 15 years were in serious need of improvement; 1.5 million lacked a bath, wash basin, water closet and hot water supply; while a further 2.75 million lacked at least one of these.

In 1961 the conservative government outlined their appraisal of the housing situation in a White Paper¹² and their proposals were then embodied in the Housing Act 1961. The main objective of this legislation was to encourage an expansion of the private sector in the provision of new housing, and a concentration of public effort on slum clearance and improvement. Specifically the Act tried to stimulate private building for letting, and to provide better finance for needy local authorities together with more power for dealing with families living in multi-occupation.¹

In the 1963 White Paper 'Housing',¹³ the conservative party made a pre-election announcement of its housing policy for the next ten years. The output was to be aimed at 350,000 new dwellings per annum; improvements were to be increased to a rate of at least 150,000 per annum; and most significant the provision of housing for letting and coownership was to be expanded. As it had become clearer that council housing and owner occupation could not between them provide for all needs, new efforts were made to promote alternative forms of house producing organisations.²

Housing Associations had been officially recognised in the Town and Country Planning Act 1909 and had between the wars completed 50,000 dwellings. Further facilities were extended to them under subsequent Acts including the possibility of becoming the vehicle of the local authority in providing statutory housing. The success of the 1961 Act

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1. That is; housing which is shared but not properly divided. In this aspect the Act failed as the price of enforcement was too often eviction.
 2. The Housing Act 1961 provided a fund of £25 million for making loans to Housing Associations over 60 years.

was reflected in its extension in 1963. The conservative government proposed to set up a Housing Corporation to promote the further development of cost rent and coownership housing societies with £100 million of government supplied capital. This Housing Corporation was eventually set up in August 1964. It can advance loans on second mortgages to housing societies. In addition building societies would provide two thirds of the total loan. Local authorities can also assist such societies by making loans or sites available, but their assistance is usually confined to subsidised schemes. Further than this the local authorities have power to assist housing societies by helping in the acquisition of sites, by lending money towards capital expenditure on the security of a mortgage, by passing on Exchequer grants and subsidies, and by making grants themselves.

As in previous elections, housing became a major policy issue in the 1964 election. The labour party were returned to power with a well publicised mandate of reforms on the domestic scene, but with a very small majority. The new government rushed through the Protection from Eviction Act which instantly and substantially increased the security of all private tenants. This was followed in 1965 by further financial reforms, a new Rent Act, and a White Paper outlining proposals for a Land Commission.¹⁴ In principal this was to have powers to compulsorily purchase land and to operate a levy on a development value.

2.7. HOUSING POLICY BETWEEN 1965 AND 1970

A further White Paper¹⁵ set out the main lines of government policy for the last five years. Although the National Plan¹⁶ to which these are related was rapidly overtaken by the economic pressures of the period the White Paper still remains an expression of government policy. Although as Cullingworth¹⁷ more accurately describes it as 'an assessment of priorities' it marked a departure from the usual bland 'answer' to the problem. It clearly states that it sets out 'only the first stage in the formulation of a national housing plan' and that there are large areas of the problem on which there are inadequate

statistics and knowledge, which need further research. The White Paper states that the first objective must be to increase new house-building as quickly as possible with a target of 500,000 dwellings per annum by 1970; rising to even higher figures in the seventies. It emphasised that initially local authorities would have to play a greater proportionate initial part, but that

'a proper balance must be ensured between building by private developers, mainly for owner occupation, and building by public authorities to let.'

This marked a fundamental change in attitude by the socialists to owner occupation and reflects an important change in social attitudes. It also recognises the necessity of planning both public and private sectors.

The White Paper proposed the following measures to achieve its targets.

- a) control of less essential building to give housing top priority.
- b) expansion and modernisation of the building industry.
- c) making the necessary land available in good time.
- d) machinery for reviewing the balance between houses to let and houses for owner occupation.
- e) financial help for owner occupiers.
- f) better subsidies for housing in the public sector.
- g) measures to enable local authorities to take full advantage of industrialised building, and so increase the output of the housebuilding industry.
- h) programming of local authorities building to relieve shortage of houses to rent in the conurbations.
- i) measures to be worked out in consultation with the local authorities for formulating the rent and tenancy policies required to gear local authority housing to social need.

An assessment of the housing situation in 1965 was also contained within the White Paper. This can be summarised as follows :-

Needs existing in 1965

- a) About one million to replace unfit houses already identified as slums.
- b) Up to two million more to replace old houses not yet slums but not worth improving.
- c) About 700, 000 to overcome shortages and provide a margin for mobility.

Needs arising annually

- d) 30, 000 per annum to replace the loss caused by demolition-road widening and other forms of redevelopment.
- e) 150, 000 per annum to keep up with new households being formed in the rising population.

These measures have partly been put into effect by means of the Housing Subsidies Act 1967 and the indicative cost yardstick which provide a comprehensive procedure for combining minimum Parker Morris standards and a cost benefit approach with approval by the ministry for loan sanction.

In 1967 the whole basis of subsidy was changed through a Housing Subsidies Act. Instead of a lump sum the ministry now pays the difference between the current interest rate and four per cent. For example a house costing £4000 to build attracts £110 per annum in subsidy (39 per cent of the councils loan charges). As interest rates steadily rose, and the ministry's contribution with them, the need for central cost control became apparent. In April 1967 the notorious housing cost yardstick came into force. This is, in fact, a table of some complexity, drawn up by the ministry's quantity surveyors and architects, which puts a price on every type of council building according to persons per dwelling, and density per acre, with variations for local costs.

Since the introduction of the cost yardstick architects have expressed concern at its effect on layout, design and construction. As its name implies, it was originally intended as a measuring instrument, but it is at present being used as a mandatory cost ceiling, not as a guide to

local authorities of reasonable cost levels. This gives an inflated priority to the necessity to conform to the detailed requirements of the yardstick, including its bias against features that are not mandatory or at the expense of other considerations that should concern the housing authority. The use of subsidy provision in this way obviously reduces the autonomy of the local authority to a minimum in regard of its housing programme. Its acceptance was not helped by the length of time that was allowed to elapse before its levels were first reviewed. An example of this can be made with the Midlands Housing Consortium. In 1966 the accepted tender for the first phase of a housing estate was 0.16 below what became the yardstick level for the area a few months later. By October 1967 when the tender for phase two came in the price was 13.37 per cent above it. This was for the same site and using identical Midlands Housing Consortium house types. Criticism has also come from the Institute of Housing Managers who it appears would prefer to return to a lump payment system.

In Scotland the 'Table of Indicative Costs' which was enforced by the Scottish Office a year after its English counterpart, is more flexible. Not only does it have a separate indicative cost for each local authority in Scotland (where England and Wales go no further than the planning regions) but it also permits a wider range of allowances, including one for architectural distinction and is prepared to discuss each case on its merits. In addition there is no fixed limit a council may spend above the yardstick in Scotland. If it can make a case for spending more than 10 per cent extra on a housing project loan sanction may still be granted.

The cost yardstick is in fact symptomatic of recognition of a much bigger problem. How can central government exercise the power that financial control gives it, without inhibiting local authorities in finding their own solutions to meet their own particular needs. This type of financial control is obviously open to abuse in the sense that it is easy to exercise control over the detailed design of housing layouts

without regard to anything but cost consequences. That subsidy support should be used to enforce the mandatory use of metric house shells would if implemented take this control one stage further.

The latest Housing Act¹⁸ came into effect in 1969, and follows very closely the White Paper¹⁹ of April 1968 'Old houses into new homes'. This Act outlines legislation which if successful could see some radical changes in British housing policy. More will be spent on rehabilitation and improvement of existing housing stock and its environment, and correspondingly less on new dwellings. The existing standard and discretionary grant system was made financially more attractive and a new 'special' grant introduced. This amount is the same as the standard grant and is intended to allow local authorities to provide for installation of basic amenities in homes of multi-occupation. When local authorities have made an improvement grant, standard grant or special grant, the minister will pay 75 per cent subsidy of the annual loan charges for a period of 20 years. Local authorities wishing to improve their housing may receive 75 per cent subsidy on half the total cost. They will be restricted to improvements costing £2000 per dwelling where they already own the dwelling, and to £2500 where the cost of acquisition is also included. In addition the same conditions and facilities apply to housing societies which are expected to play an increasing part in rehabilitation conversion and improvement. As an additional incentive to owners to improve their dwellings mortgages are made available from local authorities as well as grants. If for any reason the owner could not afford to repay the principle, the local authority may charge interest only until such time, as for example, the owner sells the house. In this situation the owner is not necessarily regarded as the owner occupier.

Under the Act local authorities are empowered to designate whole areas as an improvement area, to publicise the designation and to inform the minister. They have a statutory obligation to make their proposals known to residents and owners, and to draw their attention to assistance

that is available to them. The minister is empowered to pay a contribution to local authorities towards the cost of environmental improvements of up to half the cost of the work including land acquisition but subject to a maximum of £100 per dwelling. Similar facilities are available to housing associations or societies who work in conjunction with local authorities.

The success of the movement towards rehabilitation also depends upon encouraging the improvement of houses that are owned by private landlords. Private landlords have taken very little advantage of the grants available before this Act. As the White Paper points out! The rents chargeable even with the increase permitted after improvement do not normally provide a sufficient return to encourage landlords to improve their 'houses'. The procedure under the 1965 Rent Act is that 'fair rents' are fixed by a rent officer who helps tenant and landlord to agree a rent. After fixing the rent is registered and cannot be changed for three years. As an incentive to private landlords the Housing Act 1969 allows the rents of all houses which have all basic amenities and are in good state of repair to be fixed accordingly. It is to be hoped that new rents fixed after improvement will not be too high for the present tenants. This could be particularly critical in the case of low wage earners living near town centres.

2.8 THE HOUSING SITUATION IN 1970

There are now some 19 million dwellings in Great Britain. One dwelling in four is owned by public authorities, (in Scotland this figure is one in two). More than one dwelling in three are in owner occupation and most of the remainder are rented from private landlords. Since the war seven million dwellings have been built and one family in four lives in a post war dwelling. Figure 2.3. shows the way the number of dwellings in this country have increased in recent years and how they are distributed within the different market groups. The decline of the privately rented sector together with the spread of owner occupation can be clearly seen. The housing situation is a

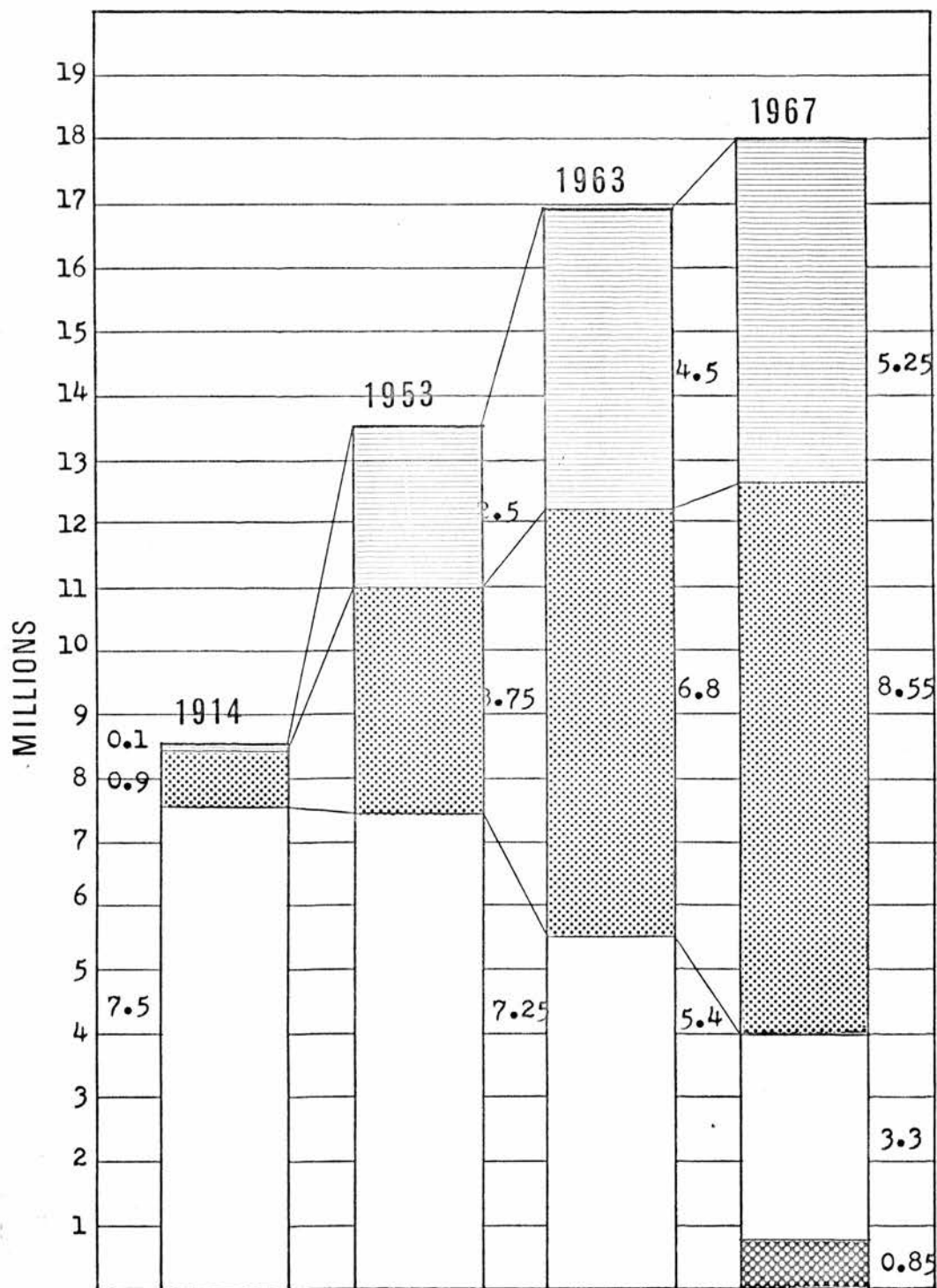
changeable one and any description of it would soon be out of date. The housing market is obviously an important element in the overall situation. The division within the market is determined by the demand for any particular form of tenure. That new houses for renting and those for owner occupation are unlikely to be substitutes for each other is an example of the problems of the housing market in 1970.

Private renting

One of the clear trends of British housing is that the stock of privately rented accommodation is diminishing in size and changing in character. In 1914 over 90 per cent of the housing stock was privately rented, by 1967 this had reduced to 23 per cent.²⁰ Many surveys have shown that no one is prepared to build houses to rent for the working classes.¹ Generally dwellings to rent remain available to the high income groups and some landlords are still prepared to invest fresh capital in building for this group. During the sixties the large urban landlords have been shedding the load of rent controlled working class housing, and if they have remained landlords at all, have increasingly turned to middle class accommodation.²

The landlords' current position is not helped by the present financial arrangements. Although the private landlord provides accommodation for the lowest income groups (and some of the richest) he receives no subsidy like a local authority, to keep his rents down; nor can he reduce his taxable income by deducting sums set aside for the depreciation and replacement of his property, as other businessmen can. In addition a policy of intermittent rent control has held rents below market levels since 1915, and for much of that period below adequate repair levels as well. Investigations have shown that whereas in urban areas more of the landlords are large companies,²¹ in the rest of the country they

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1. For example, Cockburn shows in a study of Marylebone that while renting remains as popular as before, it is mainly restricted to childless and professional people, working class families have been driven out by rising rents.
 2. For example, The Church Commission having sold 40,000 predominantly working class houses have bought 4,000 more expensive middle class houses, gaining a better income in the process.



Privately Rented
 Owner Occupied
 Council Tenants
 Occupied by virtue of employment. (Parliamentary Reply 2.2.68)

Figure 2.3 : Millions of Houses, Great Britain; by tenure.

Source : Housing Statistics HMSO 1968-9.

are often as poor as their tenants.²² Whether it is reasonable to expect these landlords as a group, to subsidise controlled tenants as a group is questionable. In practice it is often the deterioration of the property which in effect subsidises the tenants. The dwellings themselves tend on the whole to be smaller, older, worse equipped and in greater need of repair than in other forms of tenure. Half have no bath, two fifths have no hot water supply, one fifth have no flush toilet and few have a garage.²³ The dwellings are concentrated in areas of declining centres of population and generally are in the centre and inner areas of towns and cities. The tenants of private landlords include a slightly higher proportion of older and single people. The dwellings themselves are mostly in the form of parts of houses divided as flats, and terraces.¹

Nevertheless this rapidly diminishing sector has attributes that are vital to the country's overall housing stock; it has a considerable degree of flexibility in house types and sizes, the structure of the houses are adaptable to modification; it is the only sector where large numbers of small dwellings can be found, including over half of the country's stock of one bedroom dwellings.²⁴ The prices charged for the bulk of this property are still low,²⁵ and provide for many tenants who would have difficulty in paying more for their houses. As Donnison says 'This is our most flexible sector of housing, it is the sector which is declining most rapidly, and we have in the future to think what to do about that, and whether something has to be done on quite a big scale to maintain this element of flexibility in the market'.²⁶ There is little doubt that in a country whose population is expanding and subdividing so rapidly that the private rented sector can be of great value.

Owner Occupation

Between 1952 and 1967 over half the total stock of privately rented dwellings was sold for owner occupation as they became vacant, or else demolished. This has been due in no small way to the unattractive nature of investment in housing resulting from the tax structure. Owner

1. Typified by ITV's Coronation Street. Named in commemoration of Queen Victoria's Coronation in 1837. The houses are without bath, hot water or inside lavatory.

occupation on the other hand has increased substantially due largely to the inducement of tax relief on mortgage interest payments. This can amount to as much as one third of the total payment if the owner occupier is paying rent at the standard rate. During the first eight years of a 20 year mortgage (i. e. the average life of a mortgage) interest payments account for half the total mortgage outgoings. The owner occupier has therefore substantial advantage over the tenant.

Apart from conditions imposed by lending agencies there is no discrimination in the housing need of owner occupiers. Basically given that you can earn enough to pay tax at standard, or even better, surtax rates, it is almost impossible to take on too large a mortgage. It is not surprising therefore that more and more people try to become owner occupiers and landlords of the private sector are only too glad to sell.

Over half of the total number of owner occupiers live in detached or semi-detached houses. In addition about two fifths live in terrace housing, much of which has been bought from private landlords. Most dwellings are well equipped and have two or three bedrooms. There are in fact few small dwellings and few large ones. Where found these are usually in older property.²⁷

Council Housing

Since 1919 some five million local authority dwellings have been built in Great Britain. These dwellings are on average the best equipped of the lot, a bigger proportion of them have their own bathroom, lavatory, kitchen, etc., than any other sector. They are however highly standardised dwellings, some 90 per cent having between four and six rooms, there being very few old, very small or very large units among them. As a group council tenants, contain a higher proportion of families with low or medium incomes than do owner occupiers. See Figure 2.4. A slightly above average proportion of heads of council households are middle aged and relatively more are manual workers. In addition council households are larger than the average (3.9 persons per household compared with 3.00 persons for all households) and have

Figure 2.4 : Household Income and Size : Great Britain, 1967

	Average number of people per household	Average number of children per household	Average household income per annum	Average income per person per annum	Average income per adult per annum
All households	3.3	1.0	£ 1,420	£ 430	£ 620
Council tenants	3.9	1.4	1,350	345	540
Private tenants	2.7	0.6	1,130	420	540
Owner-occupiers	3.1	0.9	1,630	540	740
Owner-occupiers with mortgages	3.7	1.4	1,840	500	800

Source : MO - IEA Housing Survey, June 1967; "Housing Statistics", HMSO, April 1968, Table XXVIII.

a higher proportion of dependants.²⁸ Council housing is a highly subsidised sector of housing and in terms of value for money offers the 'best buy' for tenants. However because of their controlled high standard they are not cheap to rent. The cost of rent varies widely from authority to authority; see Figure 2.5. There are in addition many restrictions on tenants laid down by the local authority. Although in practice many of these can be justified in the interests of the community their psychological influence on tenants can be considerable. This factor, together with insecurity of tenure, may account for the publicised lack of interest of council tenants in their housing. For the tenant though, there is no financial obstacle to moving as he incurs neither legal or capital costs, as the owner occupier does, and as the private tenant may. There are however, practical obstacles to a higher rate of mobility in this sector. Tenants wanting to move to another local authority area have to apply to the other authority, and wait their turn on the housing list. Some authorities do maintain exchange registers, and some tenants advertise privately in local newspapers. These exchanges require the consent of both local authorities and can take considerable time, and initiative to arrange. It has been shown that there is little movement in council property,²⁹ and such movement as there is takes place in the vicinity of the original house. This supports the theory that the organisation of council housing inhibits the mobility of labour, in opposition to declared government policy. Movement into council housing, apart from exchanges previously discussed is from privately rented property.

In 1970 the housing situation as a simple quantitative problem is on the verge of solution. The Minister of Planning and Land forecast in the House of Commons on the 3rd February, 1969 that by 1973 there should be a margin of one million more houses than householders which would represent the five per cent surplus necessary for mobility of labour and the ordinary operation of the housing market. The problem still remains of making sure this surplus is of the right type, at the right price, and in the right place, and that those who need them can afford them. It is hoped that with the pressures off quantity the problems of quality will be the preoccupation of the future.

Figure 2.5 : Weekly Net Rents of Two- and Three-bedroom Council Dwellings in Selected Authorities,
March 1963

	County Boroughs		Metropolitan Boroughs		Rural Districts	
	Lowest s. d.	Highest s. d.	Lowest s. d.	Highest s. d.	Lowest s. d.	Highest s. d.
Two-bedroom Houses						
Pre-war: average	9 6	35 0	18 4	36 6	9 11	32 0
Post-war: average	18 8	43 9	26 6	71 6	13 6	49 2
lowest	Nil	-	15 0	-	4 3	-
highest	-	62 7	-	71 6	-	65 6
Three-bedroom Houses						
Pre-war: average	13 6	42 3	23 1	41 1	11 0	36 0
Post-war: average	21 6	47 7	30 4	89 5	16 6	43 9
lowest	Nil	-	12 1	-	6 9	-
highest	-	88 8	-	153 10	-	96 6

Source : Institute of Municipal Treasurers and Accounts, Housing Statistics (Annual) IMTA

The idea of housing as a social service is evident in the policies of both political parties. That neither party has gone far towards making housing a social service is obvious. The housing conditions of many vulnerable groups, lower paid wage earners, large families, old people, etc., are well below average. Housing policy over the past 100 years has been fragmentary, and each party when in power has done little more than cope with each new housing crisis that events throw up. Each crisis has been met separately as if unrelated to the others, that crises are symptomatic of a basic disorder has been ignored. This situation in a rich society with history of 100 years of government and philanthropic measures to solve the housing problem is deplorable. More so if one relates the achievements and affluence apparent in other sectors of twentieth century life.

Many anomalies exist in all sectors of housing which need rationalising. Why do different government departments handle different aspects of the problem? Why is more control being introduced through cost yardsticks and metric house shells which appear to prevent designers from achieving the best solution. Why can some council tenants run two cars, or a man paying surtax who buys a large house receive subsidy, or a man receive a free gift of public money to put a bathroom in his country cottage? - while millions of the poorest get no help at all. The purposes of the various house produce sectors have all been taken for granted and these need redefining. Is the aim of the public sector to help those who cannot afford the private sector, or is it to be a pacemaker in standards for all sectors? Can the private house buyer afford these standards anyway? What is the function of the architect in the various sectors that comprise the field of housing?

The function of new housing in the public sector has changed considerably since local authorities first gained housing powers. The main purpose then was to house the 'working classes' decently, but to standards easily distinguishable from those enjoyed by the middle classes. Originally local authorities dealt with the needs of that local authority within its own boundary, but to an increasing extent today they are dealing with comprehensive programmes of population movement and resettlement. Figure 3.1 shows the diagrammatic organisation of the public housing sector.

3.1. NATIONAL POLICY AND PUBLIC HOUSING

There is a fundamental difference of approach between the local housing authority and central government in the way each views the housing programme. Local authorities are not agents of the central government, and are concerned with local problems. They are legally independent bodies with independent powers of taxation, and are popularly elected. They are organisations responsible for the implementation of policy and construction. They are not however completely autonomous bodies and although they have a wide measure of freedom entrusted to them, they are subject to several constraints. Not the least of which is the fact that they can only do those things for which they have authority for by Act of Parliament. A further constraint is that many of the actions of a local authority require approval by a central government department.

Central government deals with overall strategy, relating patterns of movement and of industrial and commercial activity to the distribution of resources. The minister responsible for housing policy is the Minister of Housing and Local Government. He is advised by a Central Housing Advisory Committee (CHAC) and initiates housing legislation in England. (The Secretary of State for Wales and the Secretary of State for Scotland have similar functions.) The organisation of the Ministry of Housing and Local Government is shown in Figure 3.2.

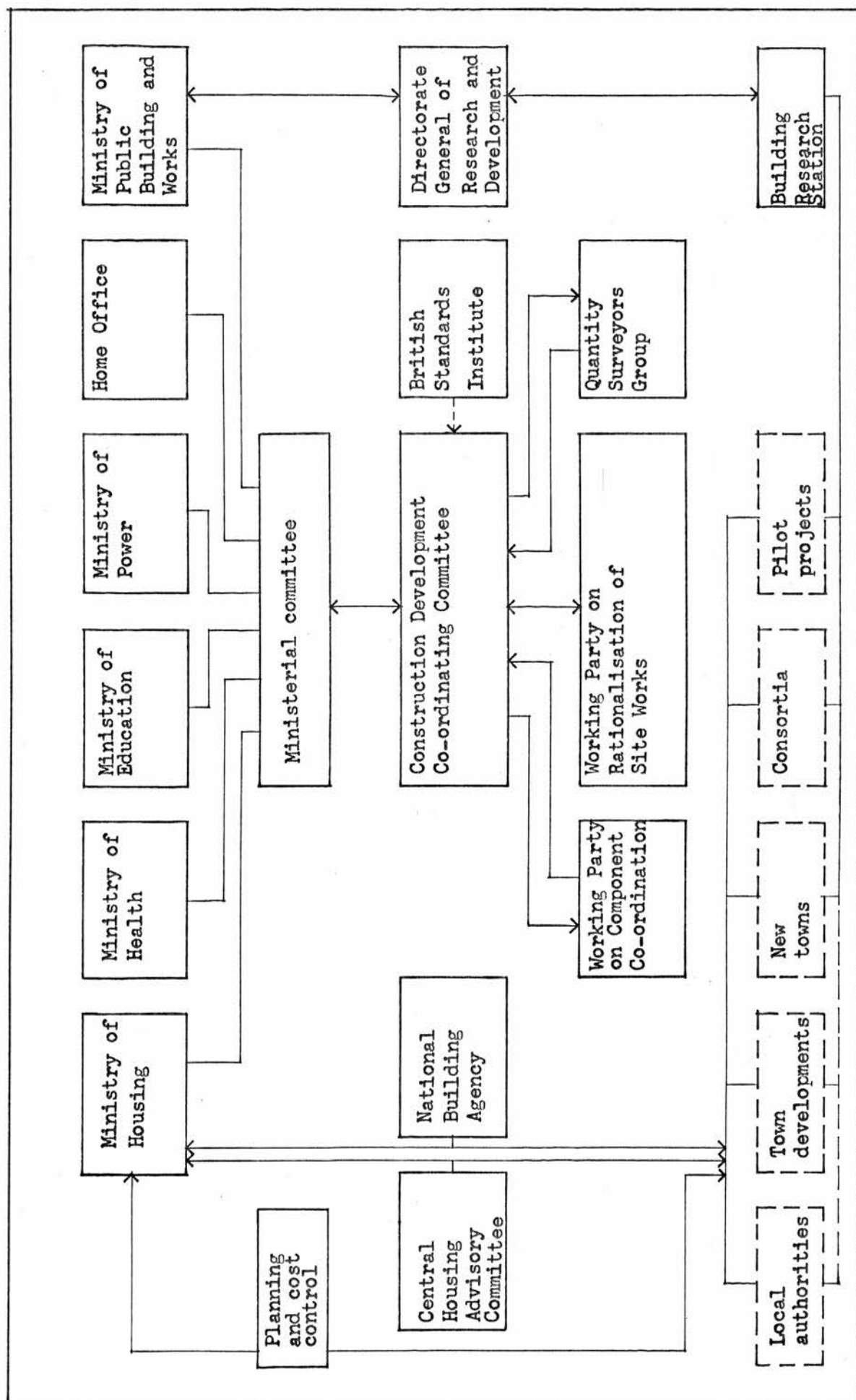


Figure 3.1: Organisation of the Public Housing Sector.

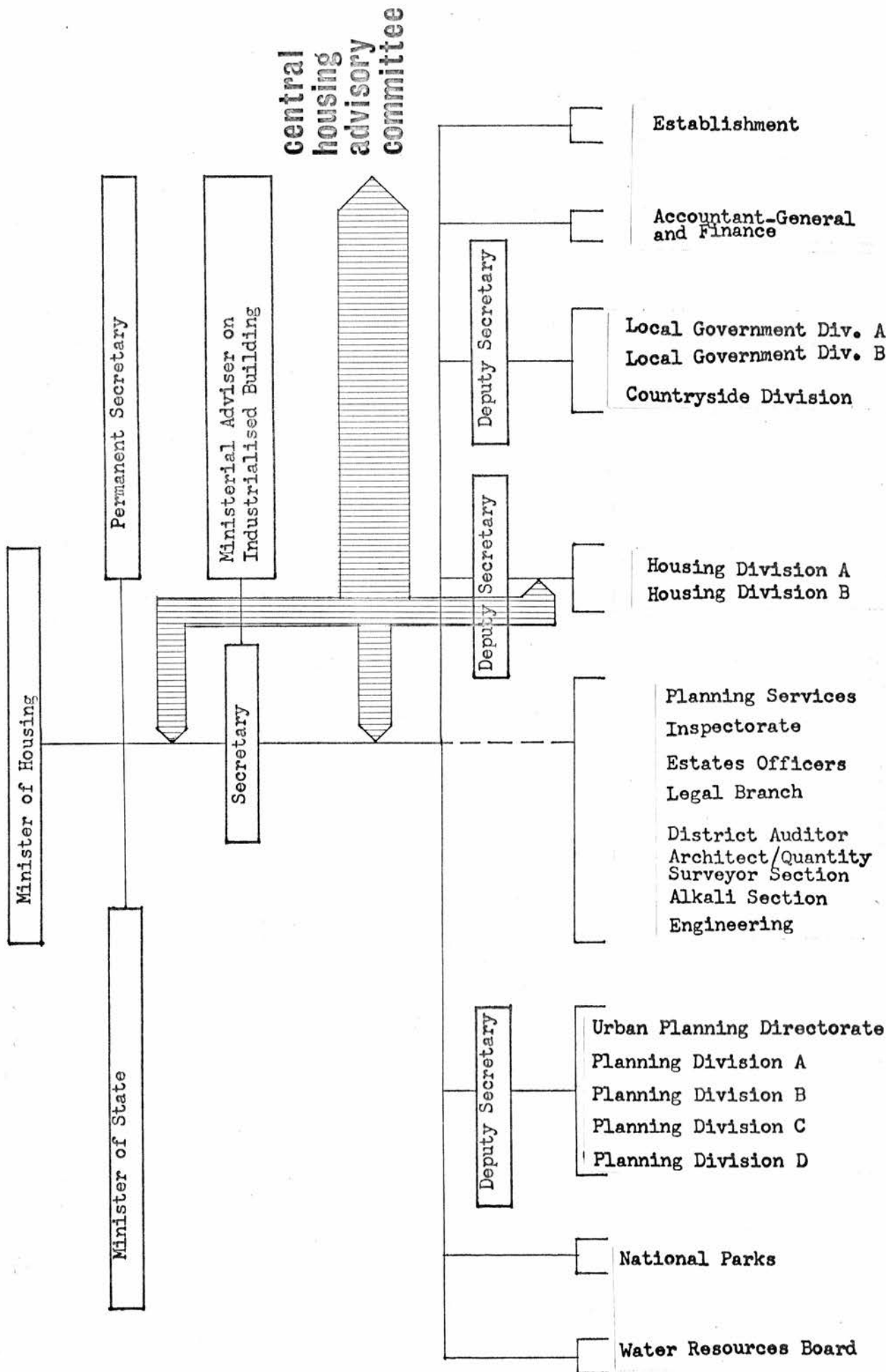


Figure 3.2 : Organisation of the Ministry of Housing and Local Government.

The role of the Ministry of Housing and Local Government in the formulation of housing policy is not very strong. Local authorities may see and interpret problems in quite different ways, or may not have the resources to carry out the Ministry's wishes. Although the Ministry may only encourage local authorities to build more houses, or to improve standards, charge reasonable rents, etc., they do have some formal powers of control over them. The Ministry's most important control in this respect is in the requirement that all borrowing by a local authority must receive their prior approval. Through this central government controls the total debt commitment of a local authority, but more important can relate the total borrowing of local authorities to the current national economic situation. The control also allows the Ministry to check the scheme for which capital expenditure is required and if necessary amend it. Housing Subsidies as well are payable 'subject to such conditions as to records, certificates, audit or otherwise as the Ministry may, with the approval of the treasury impose'. In the event of a local authority failing to discharge any of the duties imposed by the Housing Acts or failing to observe a condition imposed with a loan sanction, the Minister has further power to discontinue or reduce any future subsidies. These administrative controls for preventing local authorities from carrying out proposals which they wish to undertake or from carrying them out in a particular way are rarely used. Where difficulties arise local authority and central government officials will have informal discussions and generally relationships will remain smooth. There exists a 'partnership' between central and local government with the partners having a complex relationship. It is difficult to see which leads and indeed much of the political pressure for housing reforms have come from local rather than central government.

The inadequacies of this present system are recognised in the establishment of a Local Government Commission³⁰ which is examining the present organisation. It seems doubtful that a system which has remained basically the same since the 1880's is not in need of a major overhaul. Although housing has always been regarded as a local service,

the need both to plan large housing programmes to take advantage of industrialised building methods, and to consider the relationship between regional planning and housing underlines basic weaknesses inherent in the present system. In addition recent legislation has seen the establishment of a National Building Agency, a National Housing Corporation and a National Land Commission. All these put further pressure on the local and central government relationship and the importance attached to their development is a reflection of the inadequacy of local authority housing provision. Although as yet not seriously considered at central government level there have been serious suggestions made for the establishment of a national housing authority.³¹

An example of the trend of the transfer of power from local to central government is the recent changes in Building Regulations. The 1300 sets of building byelaws have now been replaced by one nationally determined set for England and Wales (with a separate set for Scotland where building practice has traditionally differed).³²

It can be seen therefore that the function of local housing authorities is undergoing changes and is in a transitional period. In planning (both physical and economic) the trend is towards regionalism and the establishment of regional planning boards could well accelerate these changes and result in a reduced role for the local authorities. The output of dwellings per annum for the main housebuilding organisations in the public sector is shown in Figure 3.3.

3.2. LOCAL HOUSING AUTHORITIES

If a local authority has housing powers under the Housing Acts it can be termed a local housing authority. In England and Wales they are distinguished by their multiplicity and their vast difference in size. There are 1400 local housing authorities outside London ranging in size from Birmingham County Borough with a population of over a million to Newcastle Emlyn Rural District with a population of under a thousand.

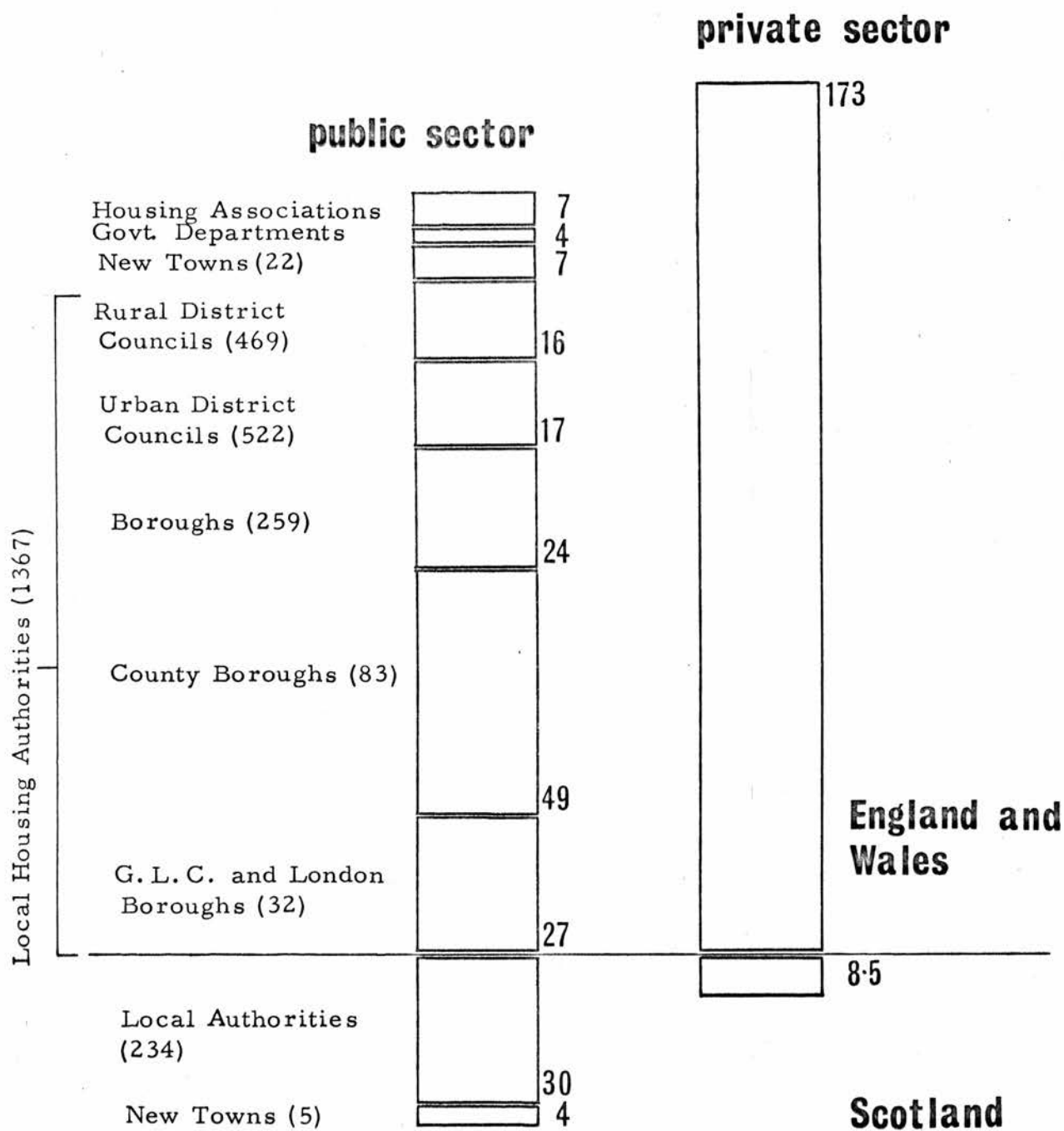


Figure 3.3 : Output of Housing by Organisation; Great Britain : 1969.
Source : Housing Statistics 1969 H.M.S.O.

Outside London the following authorities have housing powers :

1. County Borough Councils
2. Municipal Borough Councils
3. Urban District Councils
4. Rural District Councils

In addition County Councils have limited housing powers, i. e. in connection with providing housing for employees, making loans for house purchase and assisting housing associations. The London Government Act 1963 (which came into force on April 1st, 1965) has recently changed the situation in London. This Act established the 32 London Boroughs and the City of London as the primary housing authority in their own area, but in addition gave the Greater London Council certain housing functions which are, in general, supplementary to those of the London Boroughs.

A series of Housing Acts define and control the powers and obligations of local housing authorities. These reflect the wide range of problems and requirements which have caused political concern from time to time. A list of these Acts is set out in Figure 3.4. It can be seen that there has been a considerable flow of legislation since 1945 - with an average of a major Housing Act every two years. Under these Housing Acts local authorities are required to review and assess the housing requirements of the area under their jurisdiction (involving both public and private sectors) and in addition to new housing are required to deal with slum clearance and improvement, conversions, upgrading of stock and buildings for special needs. They have legal powers to initiate compulsory purchase procedures for demolition, modernisation or improvement and can serve notices to quit, closing orders and demolition orders on private owners.

When it became evident that the overspill problem could not be solved within local authority development areas and the new towns alone, the powers of the local authorities were broadened under the Town Development Act 1952. Under this Act local authorities may become 'receiving' or 'exporting' authorities and enter into a joint corporate body for the 'disposal of population from congested areas'. The authorities eligible under this Act to 'relieve congestion' in a County Borough, Greater London

Figure 3.4 : Housing Acts at Present Operative

1. Housing (Temporary Accommodation) Act 1945
2. Housing (Temporary Accommodation) Act 1947
3. Housing Act 1949
4. Housing (Financial and Miscellaneous Provisions) Act 1949
5. Housing Act 1952
6. Housing Repairs and Rents Act 1954
7. Requisitioned Houses and Housing (Amendment) Act 1955
8. Housing Subsidies Act 1956
9. Housing Act 1957
10. Housing (Financial Provisions) Act 1958
11. House Purchase and Housing Act 1959
12. Housing (Underground Rooms) Act 1959
13. Requisitioned Houses Act 1960
14. Housing Act 1961
15. Housing Act 1964
16. Protection from Eviction Act 1964
17. Housing (Slum Clearance Compensation) Act 1965
18. Housing (Scotland) Act 1964
19. Housing (Financial Provisions) Act (Scotland) 1967
20. Housing Subsidies Act 1967
21. Housing Act 1969

or a conurbation, are the Councils of county boroughs, county districts, counties (where development is carried out) and joint sewerage or water boards. To date over sixty schemes have been completed involving over 50,000 dwellings whilst over three times as many dwellings are contained in schemes planned but not yet built. The main participants being Birmingham and Greater London.

Local authorities are of course still concerned as exporting authorities with the new town development corporations and as such would be responsible for selection of tenants. In addition they would carry out their statutory functions within the designated areas.

3.3. THE ORGANISATION OF LOCAL AUTHORITIES

The function of the chief officers is to carry into effect the policies laid down by the council and its committees. In exercising their responsibilities for building, the chief officers have roles which correspond with those of the client, architect and contractor in the private sector. In some small authorities all these functions may be contained within one department, under one chief officer. In larger authorities, the client department, the architects' department and the direct labour or contracting department may be quite separate under their own chief officers, and communications between them then occur in the most formal manner. The combinations and permutations of these roles do not however, either fall into simple categorisations or only relate to size. Generalisations about County Councils and District Councils are possible, but the housing production of these is limited. The diversity of combinations within County Boroughs is enormous and occur for many reasons.

Local authorities are statutorily obliged to appoint certain chief officers, but these are comparatively few and many authorities appoint far more than the legal minimum. County Councils and County Boroughs must appoint a Clerk, a Treasurer, Medical Officer of Health, Surveyor, Education Officer, Childrens' Officer and Chief Constable. There is no such obligation to appoint an Architect, Planning Officer or Housing

Manager, although many of the larger authorities do. In the smaller county boroughs these may not be chief officer appointments. Similarly though education, health and children's authorities are required by law to appoint Committees for these functions there is no such requirement to appoint a housing committee. The non-county boroughs and urban and rural districts are legally required to appoint a Clerk, Treasurer, Surveyor, Medical Officer and Public Health Inspector. The range of additional chief officers is likely to be much more limited. As neither the Architect or the Housing Manager are statutory posts both the seniority of their positions and the allocation of their functions varies enormously from authority to authority. The organisation of the design and production of housing therefore takes many forms, the range including not only different groupings of departments but various ways of placing the client and architect functions under a single chief officer. Figure 3.5. shows a typical organisation of a local authority.

As far as new house building is concerned the key functions are those of the Engineer, the Architect, the Housing Manager and the Building Manager. The authorities vary from having only one chief officer, the Engineer,¹ with the other three functions subordinated to him, to having two, three or four separate departments with their own chief officers. This division of functions between the Architect and Engineer is a subject to which much thought is being given by local authorities. This issue which affects the building organisation, is of particular interest to the medium sized county boroughs and larger non-county boroughs.³³

It follows therefore that it is not an easy or straightforward matter to give an account of local authority housing administration : the differences in organisations and practice vary considerably. However, certain patterns do emerge and can usefully be discussed. What follows is a summary of the organisation of housing administration in various authorities, and a description of several highly contrasted local authorities.

1. The title Engineer is used but covers in addition Surveyor and Engineer, and Surveyor.

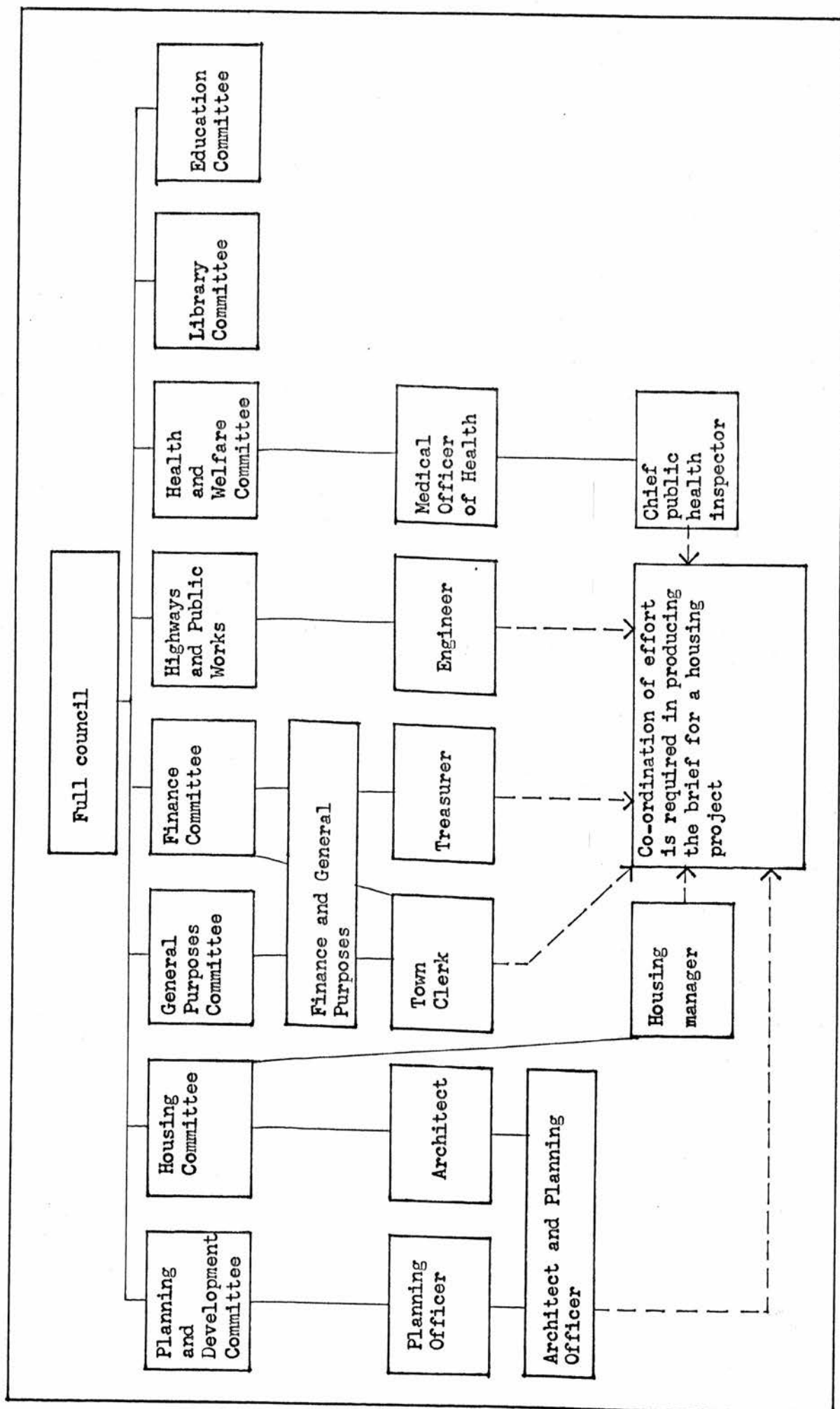


Figure 3.5 : Typical Organisation of a Local Authority.

a. County Councils

The County Councils¹ are not housing authorities though they do provide 'service' housing (e.g. for policemen, midwives, etc.). However, they are interesting in as much as they are the only type of authority in which the Architect has come to have undisputed responsibility for the architectural services. This situation has been consolidated since the last war, largely due to the seriousness of the school building programme and the way the county councils reorganised their architectural services to become more effective. The principal client of the County Architect is the Chief Education Officer and it is worth drawing attention to the differences between organising educational and housing building programmes. Many counties draw up five year school development plans, and this coupled with the Ministry of Education's arrangements for settling authorities building programmes will in advance make it possible for the County Architect to plan a great deal of the work of his department and to predict his staff requirements several years ahead. In addition the Education Officer can give fairly accurate advance information on child population changes. The quality of post war educational building and the satisfaction it is giving to users is worth noting and considering -in the light of the close architect client relationship that exists in the counties.

b. The Greater London Council and the London Boroughs

The Greater London Council both in the size and scope of its housing responsibilities is unique. It is the largest local authority and the largest public housing authority in the world. It has a population of over eight million and owns a quarter of a million houses. It has an annual rent income of £25 million, receives nearly £6 million a year in housing subsidies and spends a further £4 million on rates subsidies. It differs fundamentally from other local authorities in that it does not have sole responsibility for housing within its area. The former London County Council had concurrent housing powers with the Metropolitan Boroughs. Under the present system it is the Greater

1. County Councils are responsible only for areas included within the boundaries of non county boroughs and district councils, and not for the county boroughs.

London Boroughs who are the primary housing authorities in their own areas. The permanent housing powers and duties of the Greater London Council are defined as follows :

- a. To provide housing in connection with its powers to clear and redevelop comprehensive development areas.
- b. To provide houses for rehousing those displaced by the GLC in connection with any of its other functions such as roads, open spaces, etc. (This in itself may involve rehousing 3000 families a year.)
- c. To provide houses for normal housing purposes (but the exercise of this power is subject to the consent of the London Borough in whose area it is proposed to provide the housing, or if that consent is withheld to the consent of the minister of housing).
- d. To provide housing outside Greater London. This covers not only the provisions in new and expanding towns but also the development of ordinary housing estates outside the Greater London Council area.

Initially the Greater London Council took over all the powers of the former London County Council. In particular it has already been made clear that the GLC will continue to deal with slum clearance areas. It is estimated that over the four years 1964-1968 the total production of new houses by local authorities will amount to 125,000 of which over three quarters will be produced by the thirty three primary housing authorities.

The distribution of functions between the various chief officers corresponds closer to a large county borough than to a county council. This similarity is mainly due to the common responsibility of the housing programme. The relationship between the chief officers, both in charge of client departments and the Architect, and the arrangements for maintenance by direct labour, resemble those of the large county boroughs very closely. There exists a separate Housing Department which was established in 1954 and consists of a director, deputy director and six assistant directors each in charge of a separate branch - Management, Development, Construction, Maintenance Administration and Establishment, and Finance.

Although the proportion of dwellings built by direct labour is increasing, the majority are still being built by private contractors. The responsibility

for the preparation of expenditure estimates, material ordering, and the recruitment of labour for direct building lies with the Construction Branch of the Housing Department. All other work, including the preparation of designs, specifications and bills of quantities is undertaken by the Architects' Department or by private architects. The greater part of the building programme carried out for the Council by private contractors is also designed by the Architects' Department.

c. County Boroughs

It is in the organisation of the county boroughs and the functions of their chief officers that the comparative simplicity of the county council structure is seen. The county boroughs present a complex and diverse range of organisational structures. This is due partly to the wide range in size and population of the county boroughs, but also to historical and local causes. That there are no precise legal requirements as to the provision of architects or housing managers as chief officers has been explained. The county boroughs vary considerably in their inherited architectural quality, and therefore different emphasis is put on the importance of the built environment. The character of the housing problem can also vary considerably and county boroughs of comparable size can show staggering differences in their slum clearance problems. In addition the historical development of local government was such that Public Health and Civil Engineering were clearly established at an early stage. When the provision of mass housing developed it was frequently just added to existing well established departments. Architects have not, in any case, a long history of involvement in the design of mass housing in any form, and many local authorities viewed them as an unnecessary luxury and expense. This attitude has taken a long time to die and even in the period between the wars, when house building by local authorities was increasing rapidly, the number of architects did increase but generally they remained with the department of the engineer or surveyor.

In considering the participants in the building operation, the client, architect and contractor, it can be seen that they may on the one hand be combined in one department under one chief officer, or on the other

may each be the function of one chief officer. Between these two extremes there are therefore many permutations of organisations.

When change in structure is being considered by local authorities the principal cause for concern will dictate the changes that are made. For example if an authority's current concern is with the quality of housing that it is producing, the appointment of a Chief Architect may be combined with special responsibility for housing management. If better housing management is the authority's main concern, than a separate appointment may be made, and the architectural services retained within the Engineer's department. With the increase in interest in direct labour for new building (its use for maintenance is now widespread among county boroughs), it is now fairly common to have separate Works Departments with the works manager in charge. There does not appear to be any rational basis for deciding on the delegation of responsibility for this activity. The practice varies between authorities and the responsibility rests sometimes with the Chief Engineer, Architect or Housing Manager; and sometimes on more than one officer.

The responsibilities for the design and building of new houses has been divided and structured in so many different ways that they defy any but a broad classification. There does appear however to be a trend towards the establishment of more separate housing departments. In addition although the demarcation between the officers responsible for drawing up the brief, and those for design and construction is not always clear, there does appear to be a clearer division emerging between the engineering and architectural functions.³⁴

d. Non-County Boroughs and District Councils

The non-county boroughs and urban and rural districts do not have such a wide range of responsibilities as County Councils or County Boroughs. Although other building projects do occasionally occur they are almost exclusively concerned with housing. The number of chief officers is usually greatly reduced and the Clerk, Treasurer, and Engineer (and Architect when he exists separately) take a wider range of responsibilities

under their office. In addition as housing is the principal building activity, design and management are frequently undertaken in the same department (the Engineers' or Architects') bringing a close architect-client relationship. In non-county boroughs and districts therefore the Engineer has responsibilities which combine the traditional functions of client, architect and contractor. In practice the responsibility for housing management is divided as diversely as in the county boroughs. The housing section can be part of the Clerk's or Treasurer's Department, or may be in the Engineer's or Architect's Departments. It is still uncommon for the Housing Manager to be established as an independent chief officer.³⁵

The existence of a separate Architect's Department in the districts is rare. Usually the responsibility for architectural services rests with the Engineer or Surveyor who is also responsible for maintenance and management. Some of the smaller authorities retain private architects to the exclusion of staff architects. More usually private architects are employed as and when the need arises. Generally although the proportion of non-county boroughs and districts who have their own Chief Architect is small, it is common for architects to be employed on the staff of the Engineer.

The use of direct labour by local authorities

Direct Labour organisations have traditionally been concerned only with maintenance and small new work projects. Only about 10 per cent of local authorities build by direct labour although there are signs that this is increasing. The actual new housing output by local authority direct labour organisation is less than 10 per cent of their total housing output.³⁶

The main economic advantages can be gained where there are continuous programmes of work. In addition the organisation gains experience over a limited range of building, and its efficiency in this field should therefore improve. The true cost position is difficult to define as the management and supervision of the organisation are often obscured (or not charged for) in the overall organisation of the authority. For this reason private



private contractors feel they face unfair competition, and that the closed¹ nature of these organisations breed inefficiency. From a political point of view therefore local authorities have to keep close checks on the building costs and efficiency of their direct labour organisations, which in itself adds to the overall costs. In addition the client who employs all labour direct takes on all the economic risks of contracting.

Though direct labour organisations offer opportunities for close collaboration between architects and contractors, and for carrying out experiments in building methods, very few authorities exploit these opportunities. There are added advantages in that teams can work together over a long period of time and the feedback between all the participants should be more fruitful.

Why then has direct labour not been more successful. One well founded reason can be seen in importance attached to the role of the Building Manager, and to the stage at which he and his department are brought in to the design process. The Building Manager can be found in as many different places in the local authority structure as the architect. Appointments are usually made on low salary scales and in a highly competitive industry the best men are not attracted. Better men would be attracted as heads of separate departments but the advantages of such a separation rests on the size of the organisation and the burden on the other technical officers.

Although there are many architects and engineers with deep interests in direct labour for them it can be only one facet of their operations. Their other responsibilities and their lack of training does not normally give them the opportunity to become expert in direct labour organisations, and for this they must rely on a Building Manager.

1. The original restrictions stipulating that direct labour departments should compete by 'competitive tendering' with private contractors were abolished to enable planning of continuous programmes.

The Package Deal

The package deal type of contract offers advantages that are particularly attractive to some types of authority. Under a package deal the contractor will provide both design and construction all for one lump sum. To the client the service offers a guaranteed price without any extra items, no organisational problems and a guaranteed completion date. The client of course has no independent consultant to advise him on the quality of design or on the value he is getting for his money. In small authorities this can be critical, and even in authorities that have technical departments it is still difficult to evaluate the building in relation to its cost or to determine whether the implied terms of the contract have been carried out. The contract is usually a negotiated one and does not always break down into detailed specification of what is being provided at what cost.

In the overall building process this type of contract removes the control of the design aspects from client to contractor, it does not in any way reduce the number of functions to be performed. The resulting closer relation between the separate functions would appear to benefit the contractor. In many cases though, the contractor acts mainly as a developer and employs private consultants and occasionally additional contractors. In this situation architects are generally employed only on the design aspects of the project and not on the supervision of the construction. Although this system offers greater advantages to the authorities without complete technical services it is not uncommon to find it operating within the larger organisations. Wolverhampton, for example carries out its largest projects in this way even though they employ qualified architectural staff within the Borough Surveyor's Department.¹

3.4. CONSORTIA OF LOCAL AUTHORITIES FOR HOUSEBUILDING

The development of local authorities joining together to form consortia cannot be said to have been as successful a venture as the parallel

1. Wolverhampton are in addition members of the Midlands Housing Consortium.

movement in school building. The advantages are superficially many. Less than 20 per cent of authorities in England and Wales build more than 100 houses a year. To gain the full advantage of modern building techniques the scale of operation is critical. Considerable economic savings can be made by bulk ordering and guarantees of continuity of work. On the continent housing tends to be purchased directly by government or government sponsored organisations who can offer bulk orders and guarantee continuity which enables the development of new methods and techniques to take place. In most cases guaranteed orders can still only be provided on the right scale if the purchasing authorities can agree on standard solutions and designs to meet their future requirements. This may be difficult to organise and accept by individuals within the organisations, particularly when they have been accustomed to having buildings specially designed to meet their own individual requirements. A measure of freedom of each of the member authorities must then be lost if a consortium is to be organised. A consortium can therefore be at a disadvantage as compared with a single authority since this problem of compromise will always cause difficulties.³⁷

It is mainly in the field of school building that the consortium movement has been successful. But in drawing comparisons it should be remembered that there are fundamental differences between housing and school building. There are ten times as many housing authorities as there are education authorities.¹ School design is clearly recognised as a field for experts whereas every councillor and officer feels competent to advise and criticise all aspects of housing design. Furthermore if their success is to be assessed only by reduction in costs then it should be remembered that not even the single authorities with large programmes (the large cities and new towns) have been conspicuously successful over the same period of time.

1. There are at present five established schools consortia consisting of thirty five local education authorities who are responsible for about 50% of the total school building programme.

The Yorkshire and Midlands Housing Consortia were two of the earliest in the field and were established in 1963. They comprise thirteen authorities in all :

<u>Yorkshire Development Group</u>	Hull Leeds Sheffield
<u>Midlands Housing Consortium</u>	Coventry Derby Dudley Leicester Smethwick Stoke on Trent Walsall West Bromwich Wolverhampton Worcester

There has been considerable government encouragement to the formation of consortia by public authorities. In 1964 the Ministry of Housing and Local Government together with the Association of Municipal Corporations and the Urban District Councils Association organised a series of conferences with housing authorities who had sizeable house-building programmes but had not yet entered into consortia. In all 435 authorities attended these conferences which resulted in the establishment of eleven further consortia comprising a total of 120 member authorities.

Consortia can of course take several forms and fulfil a number of functions. This account deals with building consortia which have been created by client organisations, but there are other forms which have a bearing on both the design and production of houses. The idea of forming consortia is not confined to local authorities, and it is a possibility for any group who can provide regular orders of a sufficient size. In civil engineering the consortia has become well established amongst contractors. The system developed by the Consortium for Local Authorities Special Programme is offered commercially by a contractor for use on a number of building types. Consortia of contractors can use their power to bargain for the bulk ordering of materials. This of course could lead to consortia of manufacturers and suppliers who could control the allocation of orders amongst their

members and further increase the scale of specialisation. To follow this process through to the end means a spreading of the gains from scale of production over the client, contractor and manufactures.

3.5. THE ARCHITECT IN LOCAL GOVERNMENT

It was the historical development of local government and the early emphasis on civil engineering that has placed the engineer and surveyor in so strong a position among local authority officers. With the introduction of housing subsidies and the great increase in mass housing production in 1919 more and more architects were employed in local authorities. Many authorities still regarded the employment of an architect for housing design as a luxury, particularly as the Engineer or Surveyor had qualifications which usually included knowledge of building construction. Few Chief Architects were therefore appointed and in 1937 excluding the County Councils, there were only 17 authorities with such appointments.

It is after 1945 that the greatest increase in Chief Architect appointments occurred. The war left an enormous housing and civil engineering problem and it has been this pressure that has brought about the reorganisation and division of responsibilities of the engineer and architect. There are strong arguments which support this move on many grounds. The two professions have different attitudes and outlooks and as professions are distinct and quite different. There are always likely to be difficulties in subordinating one profession to the other. The quality of the design of housing can be determined at the top, and it is essential that first class architects are in charge of an authority's architectural services. It is doubtful whether this sort of person will be attracted by a post of deputy or assistant to a chief engineer. Similarly good junior staff are attracted by the prestige and reputation of the Chief Architect (this is particularly true of architects) and are not so attracted by an Engineer's Department. It is likely therefore that the quality of housing produced by Engineers' or Combined Departments will never be as good as that produced by an Architect's Department.

The situation has changed rapidly since the war and is still changing; there were 72 Chief Architect appointments in 1957 and over 100 in 1969 (excluding County Councils). Now all but one of the County Councils have established separate departments and the position of County Architect is clearly defined. The largest county boroughs all have Chief Architects but the authorities with populations of less than 200,000 combined departments are also to be found. Below a population of 80,000 Chief Architects disappear rapidly but are still to be found right down to the smallest authorities. Chief Architects in the non-county boroughs are mostly to be found in authorities with populations of more than 100,000. In addition some of the smaller authorities do have separate architects' departments under Borough Architects. In urban and rural districts the surveyor is usually responsible for the architectural services and a separate architects' department is a rarity.

3. 6. PRIVATE PRACTICE AND LOCAL GOVERNMENT

Local authorities employ private architectural practitioners and consultants usually for reasons which relate to problems of their own staffing or of unexpected alterations in their building programme. This relationship between private and salaried architects is important. Apart from the fact that nearly 50% of the profession are now in public service, (see Figure 3. 6.), the amount of work handled by local authorities is large, and many private practices have come to rely on a share of it, (see Figure 3. 7.). Where the volume of work handled by a local authority is small and the appointment of full time staff cannot be justified then private architectural practices are either retained or alternatively commissioned for individual contracts. In addition larger authorities are often in a position where any increase in their architectural staff cannot be justified just to meet sudden and unexpected increases in their programme. Some local authorities will periodically employ private architects to introduce new ideas and stimulate the salaried staff. Some private practices have acknowledged reputations in the field of housing and are regularly

PERCENTAGE

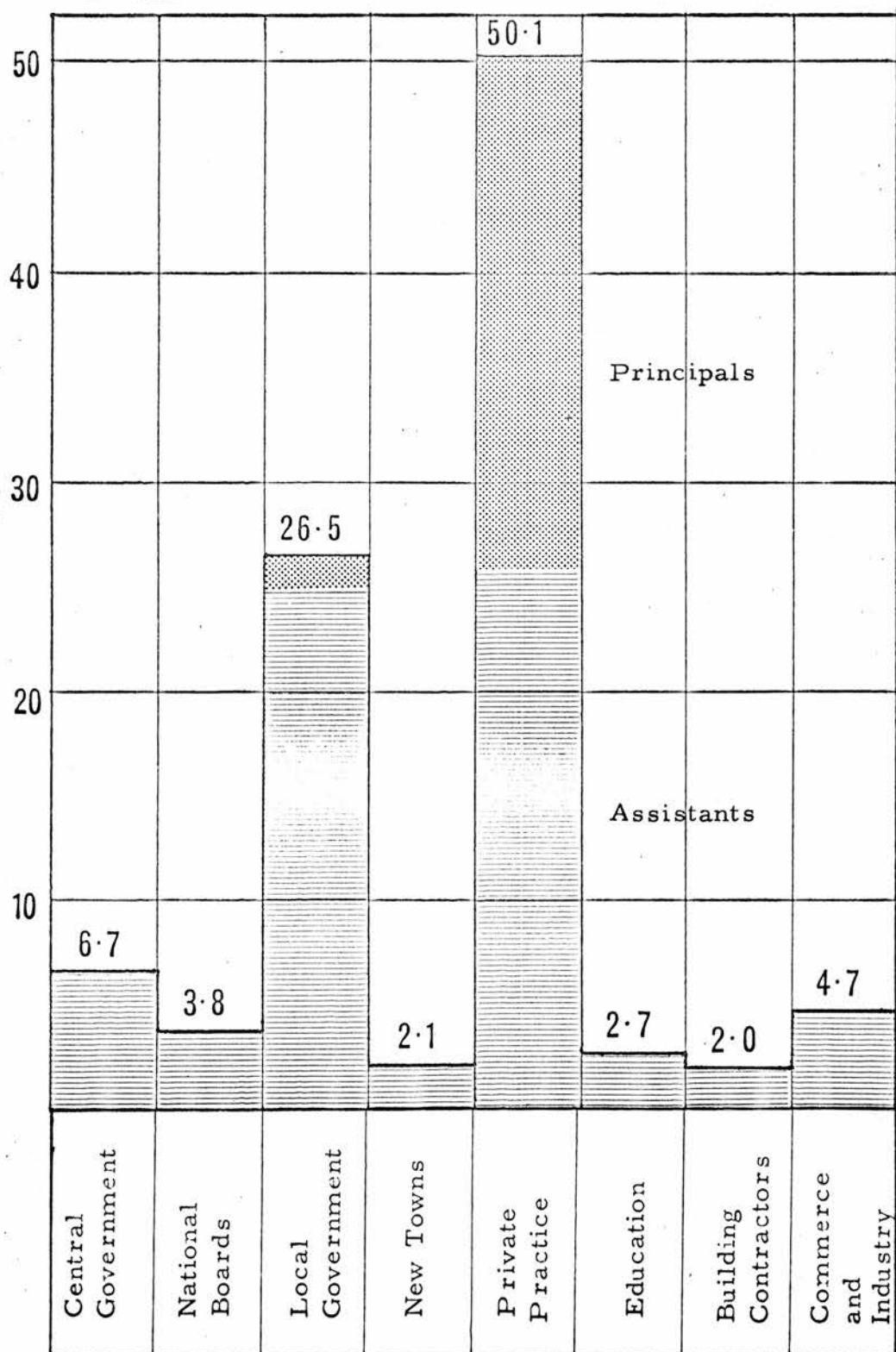


Figure 3.6 : Distribution of Architects : Category of Employment June 1964

Source : RIBA.

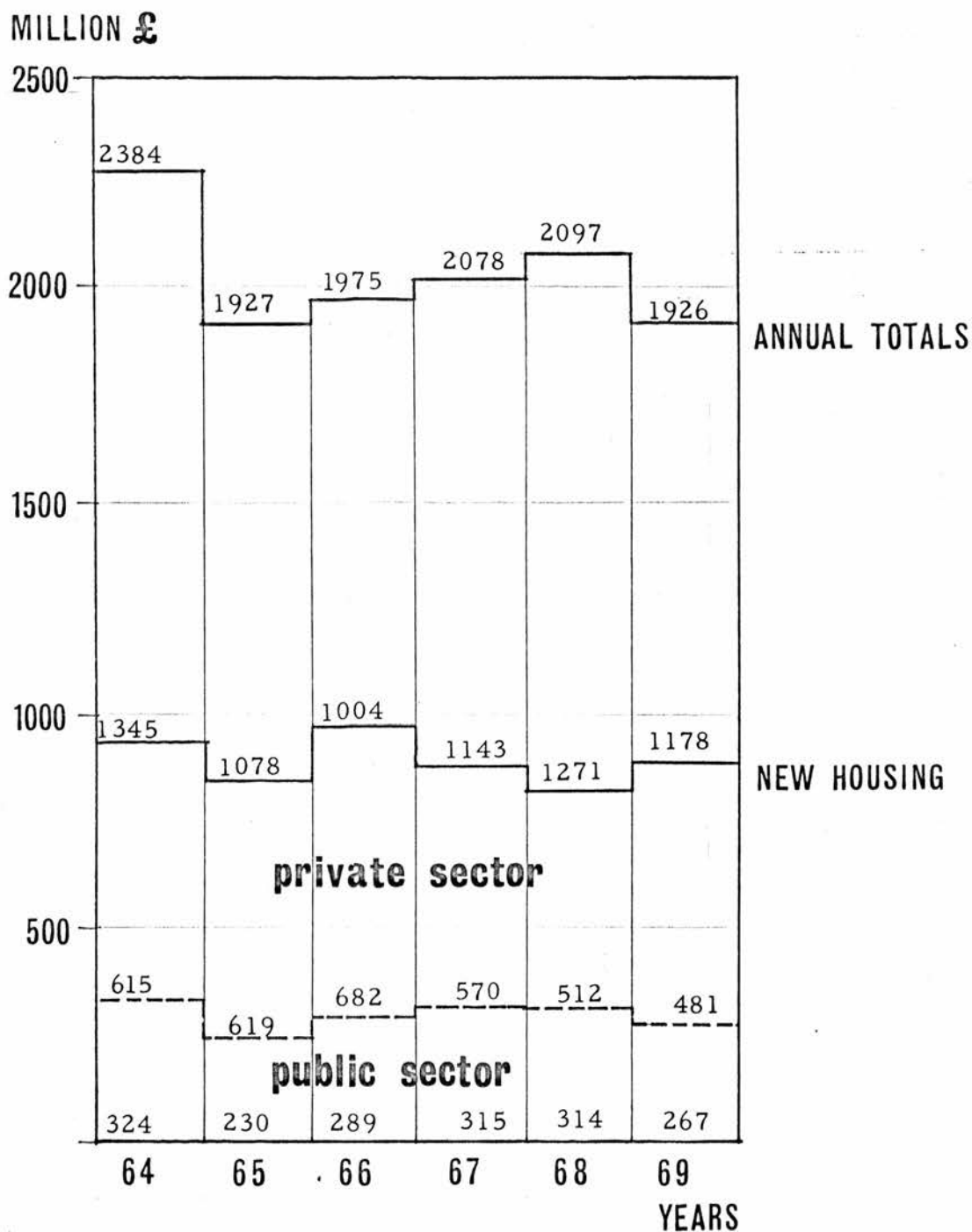


Figure 3.7 : New Commissions/Private Architects (£ millions) 1964-1969
Source : M.P.B.W.

employed over a wide range of authorities.¹ In the new towns private architects have been employed in attempts to bring different character to different areas.²

The report of the enquiry into the organisation of building construction and maintenance by Local Authorities in England and Wales³⁸ revealed a strong body of opinion against the use of private architects. There appears to be a relationship between this attitude and the size of the authority. In general this opinion grew stronger as the size of the authority decreased.

'The policy is to avoid the use of private architects, but the council has been compelled to use them during the period of post war development, and particularly because it has not been possible to recruit up to the authorised establishment! (County Council)

'The Council have employed private architects but now prefer to use their own staff.' (Rural District)

'At one time the council did employ private architects since they were unable to recruit sufficient staff of their own. They did not find that the employment of private architects increased the output in any way and are convinced that the employment of an adequate number of qualified architects on their own staff is the best method of making progress in housing development work.' (Urban District)

'Council prefer to use their own architectural staff. Work is only placed outside when council's own staff have not been able to deal with a particular scheme which must be commenced by a stipulated starting date. In practice the council has commissioned private architects for schemes of substance - conference hall, school, training college - not just routine work.' (County Borough)

Private architects employed by local authorities often complain that they are only commissioned in an emergency and by that time the job is already in some difficulties as regards time. This is bound to place the architect in a difficult position as few can afford to turn down any commissions, and this only leads to mistakes and mutual criticism.

1. e. g. Clifford Culpin and Partners

2. e. g. Harlow New Town

Local authorities usually recognise the limitations of their staff in the design of 'one-off' prestige buildings, but are slow to do so in housing. Yet from an economic point of view, the inevitable fluctuations in capital programmes, the local authorities cannot do without private architects. In addition the private architect has many positive attributes to bring to the local authority scene. He can bring new ideas to local authority departments, and introduce an element of competitiveness. The private architect has to exist by his reputation and is not as hampered or restricted by committees. The way the commission is given can influence the degree the private architect can contribute. In addition to insufficient time being allowed the work often handed out can be uninteresting and may offer the private architect little scope. Often the contact permitted with the client committee is limited, and the presence of chief technical officers can cause problems.

There are of course notable exceptions to this attitude of local authorities and these occur mainly in the large cities. The Greater London Council, (and the London County Council before them) have taken full advantage of the use of private architects. This collaboration has produced housing quality that is world renowned, and both private and salaried architects appeared to have been educated and influenced by the cross fertilization of ideas. In Birmingham, the City Architect, faced with a large housing programme, but with a desire to keep a department over which he could 'exercise personal relationships', gives out about 40 per cent of the annual programme. Practically all of this work is handed out to architects who have local private practices.

As mentioned previously, the new towns have outstanding examples of the work of private architects in the field of housing. The London new towns, Basildon, Harlow, Crawley, Hatfield and Stevenage, in particular, contain a high proportion of housing designed by private architects although all the Development Corporations have large staffs of their own.

The cost of private architects

There is little proven evidence on the comparative costs of carrying out design work in the local authority departments, as against the fees of

private architects. A firm of organisational and management consultants³⁹ who gave advice on this question considered that an efficient local authority office ought to be able to run at about two-thirds of the cost of fees chargeable by a private architect, mainly because of the guaranteed even flow of work and the fewer gaps between one commission and another. There are additional points that give added substance to this argument. The private architects' work is usually more diverse than that of a local authority and they will not be as familiar with the intricate cost and procedural problems which can cause delays and lose the authority's confidence in them. Where the authority has developed standard plan types, these are often challenged by a private architect and to the Chief Architect all this means additional time and trouble his department must expend in supervising and helping the private architect. The private architect needs good communication lines with the local authority if he is to be successful and this places equal responsibility on both partners. The private architect will rarely have the same administrative experience as the Chief Architect and cannot be blamed for mistakes that can be attributed to an insufficient briefing of design, cost and procedural requirements.

The actual comparison of fees against the cost of schemes carried out by the authority's own staff is very difficult as administrative overheads of the authority are often not costed. There are situations, for instance, where, if there is any possibility of the work not going ahead, then it is more costly to use private architects. Even if there is a general cost benefit in favour of local authorities carrying out work in their own departments this does not invalidate many of the reasons for the employment of private architects by them.

The briefing of the private architect

The method of briefing the private architect varies with different authorities and is largely influenced by the structure of the authority. Where the authority has a housing department and an architect's department it is a matter of debate as to communication patterns that are laid down. The client department may well be frustrated by its

architects' department acting as an intermediary, and feel that confusion and misunderstanding may result. The private architect may welcome the advice and support of the Chief Architect or feel that he is constantly being watched and supervised.

In small authorities the experience of the private architect may well be greater than that of the authorities' technical departments and the natural process would be for the client department to give the briefing. In larger authorities the technical department's experience may be so great that to be briefed by them would be of better benefit to all parties. Many of the failures of private architects working in the public sector can be attributed to the failure of the briefing process. The large authorities may have specialist expertise contained within them such as research and development groups and it is important that private architects can gain access to them and positive help as the project proceeds.

The Greater London Council uses a high proportion of private architects and their method of briefing is interesting. The briefing itself is carried out by the Housing Department, not by the Architect's Department. This reduces the administrative load of the Chief Architect and allows the private architect freedom of approach. The private architect who is to be commissioned, is selected by the Chief Architect and Director of Housing from a panel¹ of architects maintained by the Greater London Council for a particular scheme. A joint report is then submitted to the Housing Sub-Committee for approval. The architect is then offered the commission and is briefed by the Housing Management Department. This department contains surveyors and technical officers and the private architect gets a comprehensive brief, including procedural requirements of the Council. The private architect is introduced to the section of the Architect's Department that deals with building and planning control to facilitate close cooperation as the scheme progresses through the approvals stage.

1. This is a panel of architects approved by the Council to carry out work. Applications from architects are invited from time to time for inclusion on this list.

All contact with the Council then takes place through the Housing Management Department. This method allows great freedom to the private architects and avoids the situation of him becoming simply an extension of the Chief Architect's drawing office.

3. 7. THE NEW TOWNS AND THE NEW TOWNS COMMISSION

In 1946 the Reith Committee issued three reports which together contained a blueprint for the administrative and financial machinery needed for the creation of the new towns, and recommendations concerning their size, layout and economic and social structure.⁴⁰ In particular these reports recommended development corporations as being the most suitable agency for developing new towns. The first New Towns Act was passed in 1946 putting into effect the recommendations of the reports. This Act gave the then Minister of Town and Country Planning (now the Minister of Housing and Local Government) and the Secretary of State for Scotland power to designate any area of land as the site of a new town, and to appoint a development corporation to be charged with the layout and development of the town. In 1965, the same power was given to the Secretary of State for Wales.

The development corporation (usually consisting of a chairman, deputy chairman and up to seven other members appointed by the Minister) have powers similar to local authorities to enable them to acquire or compulsory purchase land. In England and Wales the development corporations are exempted from obtaining planning permission from the local planning authorities; in Scotland the corporations of East Kilbride, Cumbernauld and Livingston share the same exemption. Figure 3. 8. shows a typical organisational structure for a new town.

A consolidated fund of fifty million pounds, to provide advances to the development corporations, was approved by Parliament under the New Towns Act 1946. Subsequently, there has been necessity for the fund to be increased, and it now stands at £550 million, of which over £400 has been advanced to date. The capital cost of development is

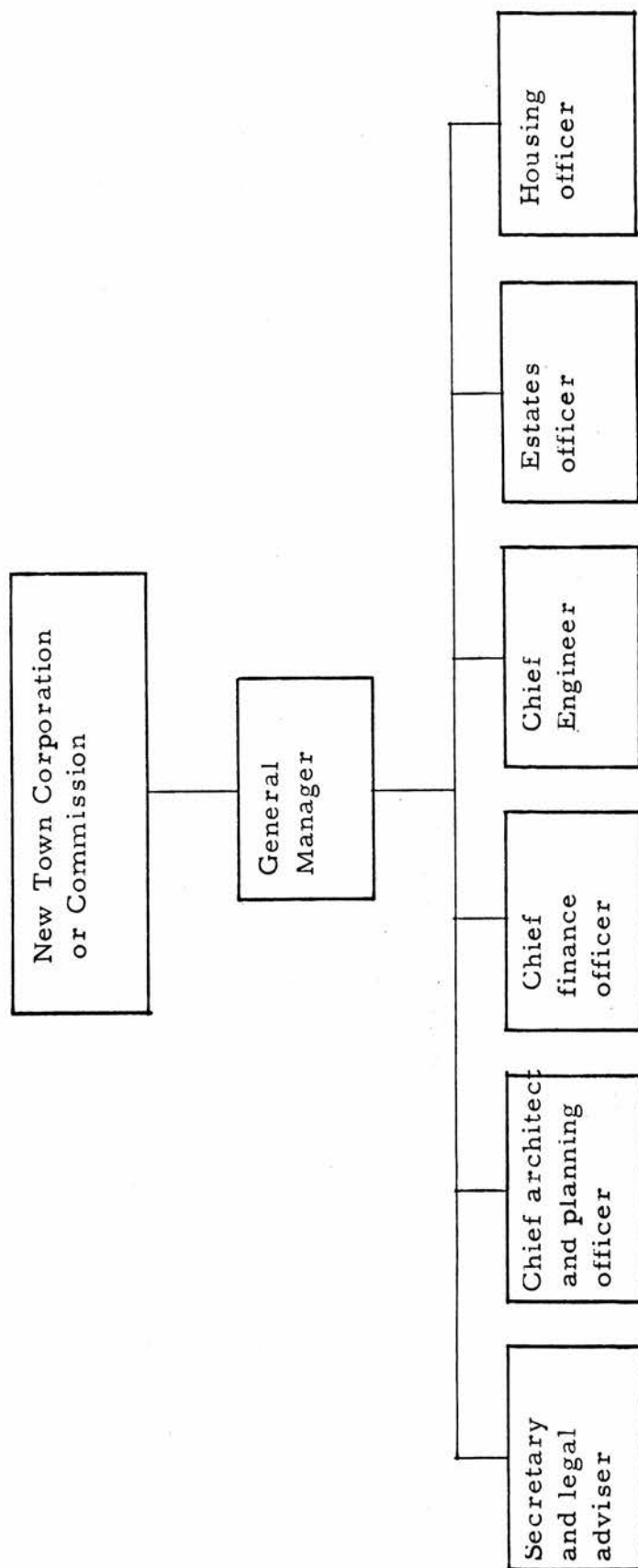


Figure 3.8 : Typical Organisation of a New Town

repaid by the corporation to parliament on terms approved by the ministers with the concurrence of the Treasury (at present repayable over 60 years out of the income from the property). In addition the corporations have to prepare annual reports, (which have to include their audited accounts), which are submitted to the responsible ministers and thereafter laid before parliament.

There are to date twenty two established new towns in Great Britain : 17 in England and Wales and five in Scotland. Eight of the new towns in England and Wales (Basildon and Harlow in Essex, Crawley in Sussex, Bracknell in Berkshire and Stevenage, Welwyn and Hatfield in Hertfordshire) are designed to help accommodate the overspill problems of the Greater London area; of the others, Corby in Northamptonshire, Newton Aycliffe, Peterlee and Washington in Durham, and Cwmbran in Monmouthshire are to serve the special needs of their areas; Skelmersdale in Lancashire and Runcorn in Cheshire are to meet the overspill needs of Liverpool; Redditch in Worcestershire and Dawley (now Telford) in Shropshire will take population from Birmingham and the West Midland conurbation. Telford will combine the original designated area of Dawley with an area around Wellington and Oakengates. Further large scale expansions will take place in the Leyland-Chorley area of Lancashire to help absorb excess population from Manchester, and at Bletchley in Buckinghamshire to provide housing for people from London, and in mid Wales. Under the New Towns Act proposals are also being made for the major expansions of Ipswich, Peterborough, Northampton and Warrington. The pressure on London has still not been solved⁴¹ and in the South East, Southampton - Portsmouth, Ashford and Swindon are all regions recommended for further expansion.

In Scotland all of the new towns - East Kilbride, Cumbernauld, Glenrothes, Livingston and Irvine, are to help in housing the surplus population of Glasgow. In addition Glenrothes was intended to provide housing in an area where mining was expanding and Livingston is to be the centre of a larger regional expansion.

The original plan in the New Towns Act 1946 was, that after the formation period of building and organisation, the development corporations would be wound up and the local authorities would take over the new towns. The Reith Committee's first report recommended that a central advisory commission be created. Its main functions would be coordination of policy and practice, and pooling of information and experience. This recommendation has never been adopted and the Ministry of Housing and Local Government has retained these functions within the ministry. The New Towns Act 1959 rejected the original proposals mainly on the grounds that there are disadvantages and dangers in one body being both landlord of an entire area and also the local authority.

Though there are cases of substantial areas of towns being owned by the local authority at present, there is no case where the entire town is so owned. The 1959 Act therefore provided for the setting up of a single special commission which would take over the assets and liabilities of each of the development corporations of the new towns in England and Wales as they neared completion. On 1st October 1961, the Commission for the New Towns was established and on the 1st April, 1962, the assets of Crawley and Hemel Hempstead Corporations were transferred to them, the development corporations being subsequently dissolved. Welwyn and Hatfield (with development corporations with a common membership) had their assets transferred in 1966.

The majority of housing built by the development corporations of the new towns is subsidised housing. In addition most corporations build better grade housing, and sponsor private house building (and in some cases offer plots for private individuals to build on). The housing function of a development corporation is therefore wider than that of the average local authority. The high proportion of publicly owned rented accommodation inflicts a high burden on the taxpayer, and the commission has been encouraging a programme of private housing, housing at higher rents and housing association schemes. This has additional advantages where tenants vacate existing subsidised accommodation which in turn provide the re-lets for lower paid tenants.

The commission can also absorb rising costs more easily than a development corporation by pooling rents.

The Commission for the New Towns therefore has quite a different role from a local authority, although in many ways complimentary. It aims to establish close cooperation with local authorities in the main provision of rented, subsidised housing. It establishes common policy with local authorities, as far as practicable, which include joint housing advisory committees and waiting lists, and common rent levels. It aims to establish a diversity of landlords by encouraging as many alternatives of rent and purchase as possible. This includes sponsored private enterprise and self build groups and housing associations. This latter method is most significant as private enterprise has always been slow to develop in new towns. This is due to an unwillingness on the part of the developers, who have seen the conditions of restrictions of sales to people working or living in the town, and the competition of the high amenity standard of rented houses, as factors which would adversely affect their selling prices and profit.

3.8. STATUTORY HOUSING ORGANISATIONS

Organisations outside the traditional arena of local government have been set up from time to time where local authorities have been unable to deal with particularly difficult problems.

In Scotland, the Scottish Special Housing Association assists local authorities in their housing programmes. It was originally established in 1937 to build houses in the depressed areas and its powers have gradually been expanded and today it owns over 50,000 houses, (of which 9,000 are in Glasgow). It is financed from government funds and is under the general direction of the Secretary of State for Scotland. It has built about one in eight of the total permanent new houses built in Scotland since May 1945. It is a comprehensive authority with responsibility for all aspects of housing, management, design, construction, etc., and its own direct labour building system is the basis for the Scottish public housing consortiums (Scottish Local

Authorities Special Housing) system.

The Northern Ireland Housing Trust is a similar body and was established in 1945 to erect houses for letting and to supplement the house building programmes of local authorities. The Trust has built about a quarter of Northern Ireland's post war housing.

The North Eastern Housing Association was, like the SSHA, set up under the 'Special Areas' legislation and functions in the north of England.

The problems of local government in England are different from both Scotland and Ireland but the NEHA is still functioning and now owns over 17,000 houses. Another statutory organisation, set up specifically to encourage the growth of housing society development, is the Housing Corporation. A large number of the housing powers of local authorities can be operated through housing societies and associations. Local authorities can help societies by making loans or sites available, although their assistance is largely confined to subsidised schemes. They have powers to assist associations by giving grants, by passing on Exchequer grants and subsidies, by lending money towards capital expenditure on the security of a mortgage, and by helping in the acquisition of the land for a site. Since the war, housing associations have built over 81,000 dwellings in about 450 local authority areas, and this number is increasing rapidly. The effectiveness of the housing society movement in the public sector does depend to a great extent on the attitudes that local authorities adopt towards them and the degree of collaboration they receive. Some authorities see them as direct competitors for land, whilst others are willing to use compulsory powers of land acquisition on behalf of societies. Others like to obtain rights of tenant nomination in return for assistance given. The diversity of local authorities makes any simple generalisation difficult.

The contribution of the Housing Corporation in providing a third sector of housing in this country is important. With the decline in the private rented housing stock a family in an area with long waiting lists for local authority housing has little choice. They have to buy or, where this is beyond their means, take furnished rooms. The housing

association movement is considered separately in Chapter Five where it is related to both public and private housing.

3. 9. THE NATIONAL BUILDING AGENCY

The National Building Agency was established in 1964 by the Minister of Public Building and Works as an independent advisory body. In common with other public bodies not established by statute it is incorporated as a company limited by guarantee. The NBA is a non-profit making organisation and can neither trade or undertake direct building work. It is financed by grant-in-aid the amount being decided upon annually by the minister. Through this the minister retains considerable control over the functions and policies of the organisation.

Initially its main functions were to promote the use of improved techniques of design, management and site operations in both public and private sector building, particularly in housing. In the first two years of its existence it became apparent that its main activities were concerned with local authority housing, and in 1966 government responsibility was transferred to the Minister of Housing and Local Government and the Secretaries of State for Wales and Scotland. No substantial changes in the functions of the NBA were made as a result of this and a further policy statement was made in June 1967.⁴²

'No change is proposed in the basic constitution and terms of reference of the Agency. Its main functions in the immediate future will be, in cooperation with the Ministry of Housing and Local Government and the Welsh Office, to help improve productivity, consistent with reasonable price and quality of the dwelling and environment, in both public and private house building. It will provide services to building clients, in particular the public authorities, and their professional advisers, and to manufacturing and building firms predominantly engaged in housing. (Reference to public authorities includes local housing authorities and consortia, new town corporations, government departments, housing associations and other semi-public building organisations).'

The NBA is managed by a board of directors appointed by the Minister of Housing and Local Government and the Secretaries of State for Wales and

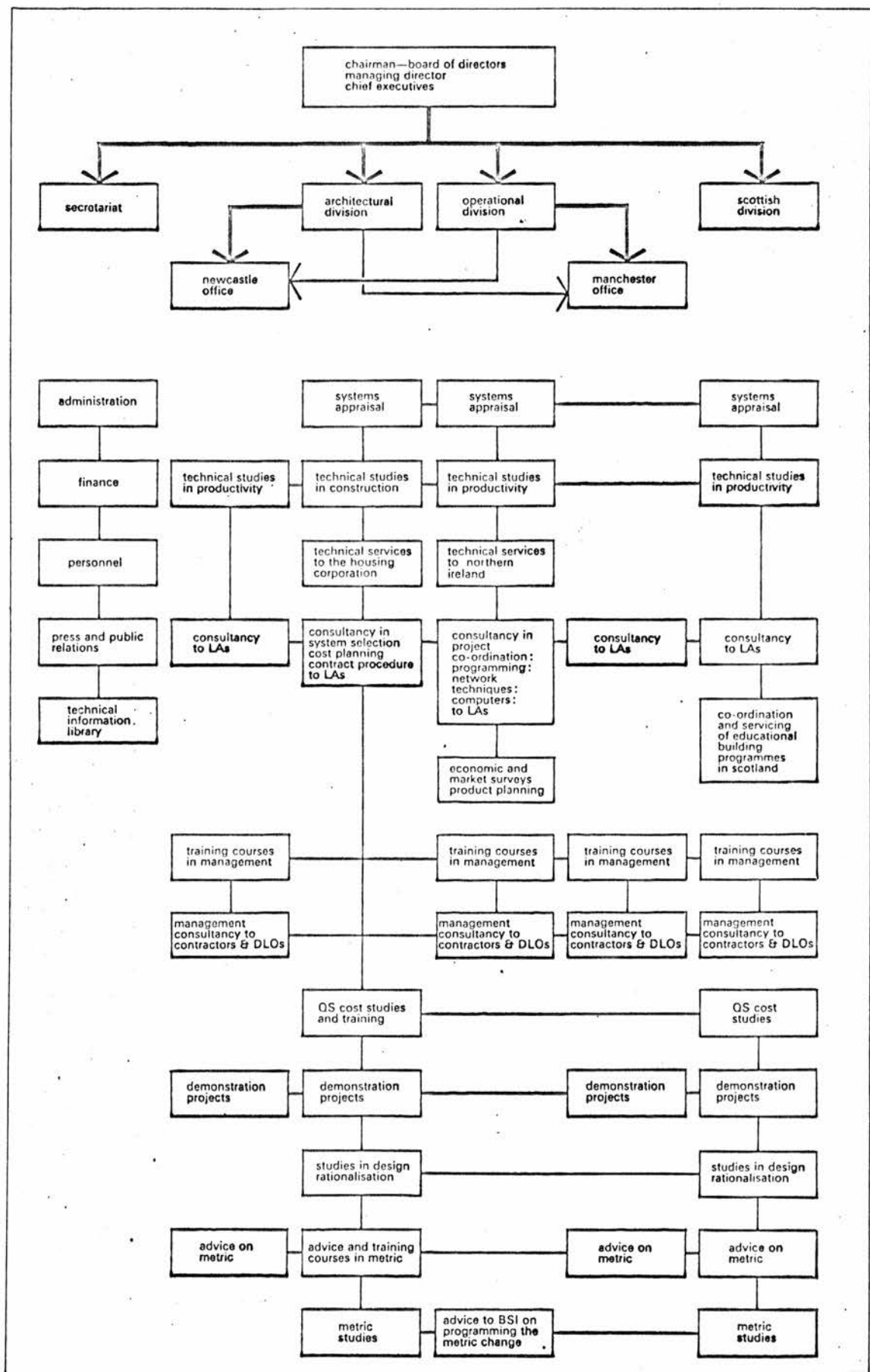


Figure 3.9 : Structure and Activities of the National Building Agency.

Scotland. The board represents a wide range of professional, administrative and industrial experience. The NBA has its headquarters in London with a Scottish Office in Edinburgh and regional offices in Newcastle and Manchester.

The organisation of the NBA is divided into two interrelated divisions. The architectural division provides a free advisory service to local authorities and new towns on the use of systems and rationalised techniques for housing. Together with the Ministry of Housing and Local Government advice and help is given to local authority and new town consortia.¹

The operational division is mainly concerned with productivity and efficiency of precontract organisation and of site operations. It assists local authorities, new towns and consortia with the planning of housing programmes and the coordination of the various departmental activities which affect the housing programme. This work has included advice on the adoption of advanced management techniques, the application of network analysis and the use of computers. The NBA also undertakes management projects for building contracting organisations and has developed the application of line-of-balance⁴³ programming to problems of house building. In England and Wales the NBA provides technical services for the Housing Corporation² in the technical, economic and architectural aspects of housing for letting at cost rents or for group ownership.

Systems Appraisal is perhaps the activity for which the NBA is best known. This work was first undertaken because of the large and ever increasing number of low rise systems that were available. Each of the potential 1400 local authorities clients were therefore faced with the problem of making comparative assessments on many systems some of which were not technically or financially sound, or existed in name only. The NBA therefore developed a method of appraising systems in terms of

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1. The Newcastle office is assisting a working party, the North East Major Authorities Group, under Ministry chairmanship to agree a common range of plan types and to build a programme of rationalised traditional houses.
 2. This service is provided by the SSHA in Scotland.

functional and constructional standards, the building experience of the sponsor and an examination of plan types. When satisfied, the NBA issue a certificate which is available to prospective clients.

There is a significant difference in the work of the Scottish Office and that of the NBA in England and Wales. In Scotland a high proportion of the work of the NBA is in the field of educational building. In the field of housing the function of the NBA is influenced by the special conditions that exist in Scotland. For example there are 240 housing authorities in Scotland of which 154 authorities completed fewer than 50 houses in 1967. The main aim of the NBA has therefore been to work together to coordinate demand so that the most economical use can be made of existing resources. In addition housing standards and Building Regulations are different from those for England and Wales, and consequently separate appraisal certificates are issued.

The NBA works in close collaboration with the Scottish Development Department and the major housing organisations in Scotland. The unique position and function of the Scottish Special Housing Association has been mentioned. In addition there is one major consortium of housing authorities, the Scottish Local Authorities Special Housing Group which was set up in 1963. In 1967 the 32 members of the SLASH consortium were responsible for completing 65 per cent of the houses built in Scotland. The NBA are represented on all committees of SLASH and works closely with the combined SDD/SLASH research group. Similar relationships exist between the NBA and the SSHA/New Towns working group.

A number of surveys have shown that owner occupation has great attractions in providing security, freedom and pride of possession; whilst at the same time representing a considerable investment.⁴⁴

It is not surprising therefore that since the end of the last war there has been a great growth in owner occupation. Between 1947 and 1961 the proportion of households in owner occupation rose from one quarter to two fifths and is at present approaching a half. In terms of new house-building 45 per cent of the 5.5 million dwellings built in England and Wales since the war have been provided by the private sector.⁴⁵

Although the provision of houses can be broadly divided into the public and private sectors, in practice they are inter-related in a number of ways. For instance, the construction of houses in both sectors utilises the same contractors and the private sector depends upon the public sector for its roads, services, refuse collection and often its maintenance. The owner occupier is also subsidised, but in a different way, to the council tenant. The fundamental difference between the two sectors is that the builder or developer is a businessman, and like any other businessman, his main aim is to make a profit. He has no captive market to draw on, such as a housing list, but has to sell all his houses to individual purchasers in a free market. The builder or developer therefore needs to know what type of houses sell best.

Generally the market for dwellings for sale is a highly competitive one in which prices broadly reflect the supply and demand for dwellings of the available size, quality and location, although the overall level of prices is likely to be influenced by the availability of alternative subsidised or rent controlled property. The amount of dwellings which can be built for sale is limited by the availability both of land for which planning permission can be obtained and of finance. Periodic limitations on the amount of capital available for financing mortgages derives from the inability of building societies and other mortgage financing institutions to attract funds in competition with other forms of saving. This shortage can usually be corrected by offering more attractive rates of

interest. On the other hand the number of households able and willing to buy houses is limited, partly by lack of income, and partly by a reluctance to use their income in this way. In addition the financial arrangements involved in borrowing for house purchase are often onerous and act as a deterrent.

Although since the end of the nineteenth century governments have been more active in housing, and local authorities own 30 per cent of the nation's homes, the peaks in annual housing production have in the past been as often due to the private sector, as to the public. As Gray⁴⁶ points out the correlation between total and private housebuilding (+0.75) is considerably stronger than that between total and local authority housebuilding (+0.34). In fact the peaks in total annual home completion have often been associated with periods when the private sector was booming or when its rate of increase was faster than that of the public sector. See Figure 4.1.

Although the rate of construction of new dwellings has fluctuated in the past the post war performance is impressive. The yearly output of the private sector rose from 25,485 dwellings in 1951 to a maximum of 221,264 dwellings in 1964, and an only slightly reduced figure for 1967. In the public sector, however, the 1951 total of 176,371 dwellings (seven times the comparable figure for the private sector) had increased only by some 35,000 dwellings to 211,247 in 1967. For seven years between 1959 and 1966, the private sector completed more buildings than the public, sometimes by a margin of as much as 60,000 dwellings. Completions in the public sector during 1967 exceeded those by private builders for the first time since 1958, and it was this increase that took total annual production over the 400,000 mark.

The White Paper 'The Housing Programme 1965 to 1970' (Cmd 2838) envisaged the total production of 500,000 dwellings a year by 1970, half to be completed in the public sector and half in the private.

'a common plan is needed in order to reach the half million figure. It is also needed to ensure that a proper balance is maintained between building by private developers, mainly for owner occupation and building by public authorities

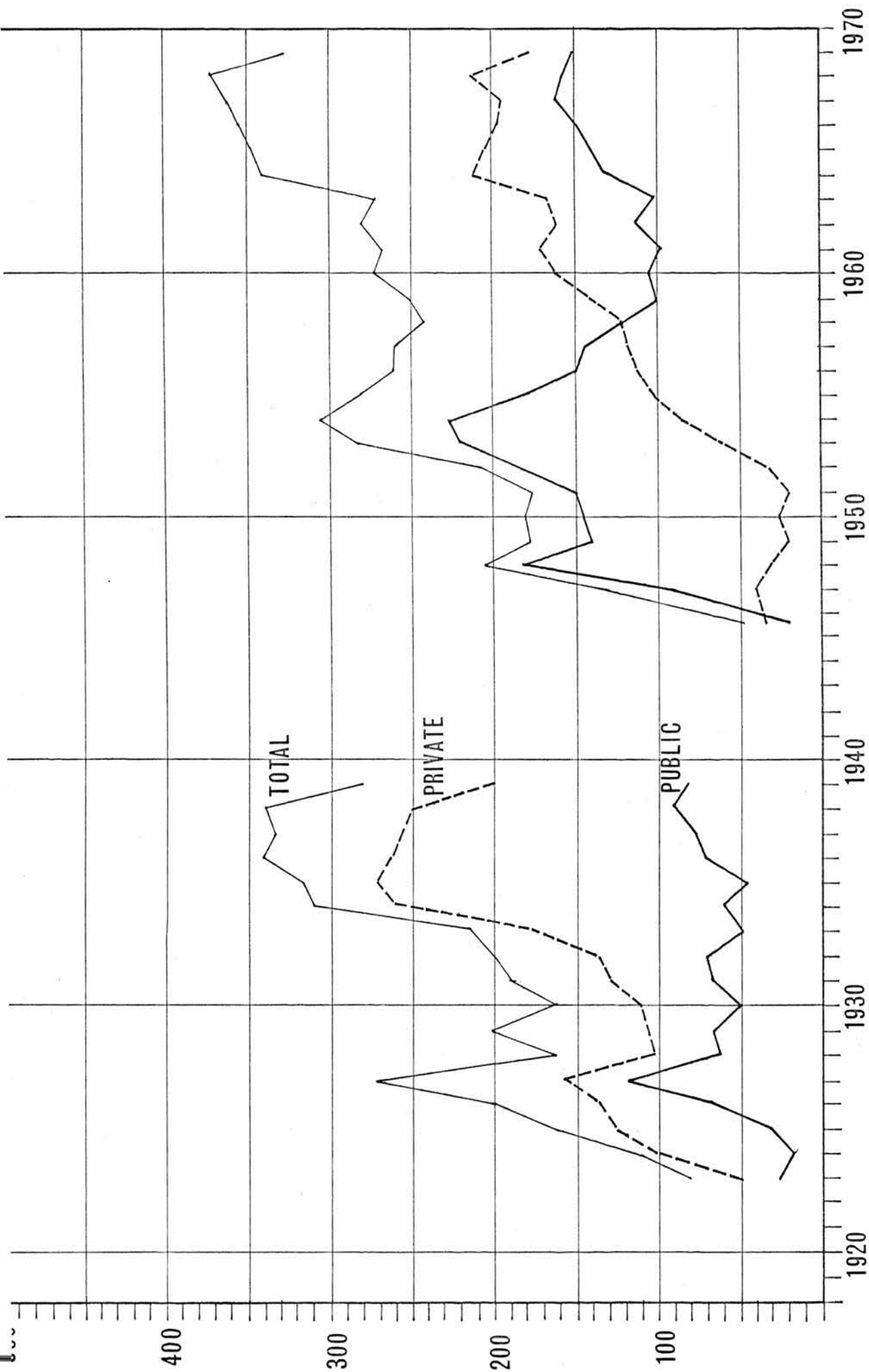


Figure 4.1 : Permanent Houses built in England and Wales 1923 - 1969

Source : Housing Statistics H.M.S.O. 1970.

to let. In the last 15 years the balance has fluctuated wildly. The fluctuations have not reflected any considered view of housing needs. Private enterprise has built as many houses as it could sell. '

The White Paper goes on to outline the necessity of government intervention in the private sector and its proposals for a periodic review of the balance of housing production.¹ These proposals were accepted by representatives of the private sector at that time, both builders and financiers, although increased doubts have become more apparent since. The White Paper also encouraged the establishment of the National House Builders Registration Council with the result that about 80 per cent of all private houses in Great Britain are now being built by builders who belong to this association.

The White Paper had been written at a time when the private house-building sector had been effected by the mortgage famine earlier in 1965. Private starts had fallen sharply and the time lag between starts and completions had risen by nearly two months reflecting the increasing difficulty in selling houses. Completions in the public sector during 1967 exceeded those by private builders for the first time since 1958. In the private sector completions had fallen from 214,000 in 1965 to 200,000 in 1967 rising to 222,000 in 1968. The new house completions since the Labour Party assumed office in 1964 is given in Figure 4.2.

Whilst the main characteristic of the public sector in the last few years has been a strongly rising programme, the same cannot be said for the private sector. In the private sector the main characteristic has been the change from the dominance of supply bottlenecks of the earlier years, to constraints on prospective demand for new housing. Private sector performance is in fact closely geared to financial and economic conditions in general, and the availability of mortgage funds in particular. As these have changed and as confidence has fluctuated from one period to another wide variations in activity have occurred. Financial measures aimed at

1. The machinery for this reviewing was to be the setting up of a working party on which the builders, building societies, materials producers, local authorities and central government were all to be represented. The working party has proved to be an important link between industry and government.

Figure 4.2. : New House Completions in Public and Private Sectors
1964-1970

	Public	Private	Total
1964	155,582	218,094	373,676
1965	168,498	213,799	382,297
1966	180,137	205,372	385,509
1967	203,918	200,438	404,356
1968	191,722	221,993	413,715
1969	185,090	181,703	366,793
TOTAL	1,084,947	1,241,399	2,326,346

Source : Housing Statistics No. 16 HMSO 1970

reducing the pressures on resources hit hardest at durable goods such as new houses; the relative moderate fall in annual private completions must thus be viewed against the background of successive measures to correct the balance of payments and reduce inflation. Any changes that occur in the economic situation generally have the greatest impact on housing starts. At these periods of uncertainty and economic stringency, builders usually reduce the volume of work they have in progress and this is usually best effected and achieved most rapidly by cutting back on the number of starts. The influence on completions is less marked. The time gap between starts and completions means that completions can be rising when confidence is falling and vice versa. In addition, in the interval between starting and completing, changes in the level of confidence can occur which may offset earlier set backs. Any fluctuations in sales can also be absorbed by changes in the stock of unsold, completed houses.

As pointed out earlier the private and public sectors should not be regarded as independent, despite the fact that the number of houses built in the ^{latter} ~~former~~ is broadly determined by the government and in the ^{former} ~~latter~~ building activity depends primarily on the demand for houses expressed through the market. This is not only because many of the builders build houses for both sectors, but also because some factors affect each sector simultaneously (materials, labour, etc.) and there is therefore often competition to obtain available resources. The level of activity in one sector can therefore affect performance in the other. The problem for the private sector is that as the overall shortage of housing is reduced, builders providing houses enter more and more obviously into direct competition with each other.

4.1. THE FINANCING OF PRIVATE HOUSING

The growth in owner occupation has been in part due to the rapid development of finance houses, in particular the Building Societies. Figure 4.3. shows the development of the three main financing agencies for private houses, the building societies, the local authorities and insurance companies. This clearly shows the expansion of building

Figure 4.3. : Mortgage advances in the UK in £millions

Year	Building Societies	Local Authorities	Insurance Co's.	Total
1962	618	94	118	830
1963	852	119	107	1078
1964	1052	195	132	1379
1965	965	244	163	1372
1966	1245	134	147	1526
1967	1477	168	124	1769
1968	1587	108	168	1863
1969	1544	N.A.	181	N.A.

Source : Housing Statistics, Great Britain, No.16, HMSO 1970

societies to the point where they are now financing some 50 per cent of the country's new housing. Local authorities lending has been severely restricted by the government over the past few years, and the main direction of their lending has been confined to special categories of need. Insurance companies on the other hand have not displayed any interest in expanding actual lending although they contract a great deal of endowment insurance in conjunction with building societies. Building societies have grown from small savings organisations into institutions of major importance with total assets of nearly £9,000 million. In 1968 the figure lent was almost £1,600 million, and the number of loans made was 595,000. Building societies are therefore by far the largest source of mortgage funds. In 1968 the other two sources - local authorities and insurance companies lent £174 million. That is about 17 per cent of the amount which was lent by building societies.

The building societies do anticipate an increase in their activities during the next few years. The Building Societies Association estimates that in 1970 something in the order of £1,900 million will be needed to meet the demands for home loans. In 1971 this figure will rise to £2,100 million. The main task facing building societies at the moment is therefore to attract and retain sufficient savings to enable them to do this. The difficulty at present is that when societies increase the rate of interest they pay to investors they also have to increase the rate they charge to borrowers. High interest rates coupled with inflation have reduced the number of potential owner occupiers who can afford to repay the average home loan. Mortgage interest rates have increased from $5\frac{1}{2}$ per cent in 1959 to $8\frac{1}{2}$ per cent today. House prices have increased by 80 per cent in the last ten years compared with a general increase in the cost of living of 70 per cent. The result is that many people, particularly young couples are being priced out of the market. In answer to a recent question in parliament, the Minister of Housing and Local Government said that in 1959 the monthly repayments on a 90 per cent home loan on a new averaged priced house over a repayment period of 25 years would have been £13: 4: 0d. In 1969 a comparable figure would be £34: 6: 0d. The majority of people who buy houses earn

between £950 and £1,450 per annum and it is these people, particularly young couples, who are worst hit by the constantly rising costs.

Obviously finance houses advancing money for house purchase naturally wish to safeguard themselves against losses. This they do mainly in two ways : first, by limiting the period of the loan, not only to one considerably shorter than the likely life of the dwelling, but also to one considerably shorter than the expected earning life remaining to the borrower; and, secondly, by only lending a portion of the value of the dwelling, usually 85 to 90 per cent of their valuation. As a result, the borrower needs to raise a substantial amount of money to meet that part of the purchase price not covered by the loan. The need to meet part of the capital cost from the borrower's own resources is particularly difficult for someone purchasing a dwelling for the first time. One developer Span, Kent Limited, have introduced one possible part answer at New Ash Green.

'Because we saw a potential market in the newly marrieds at New Ash Green we asked Span's consulting architect, Eric Lyons, to design a smallish house of 840 sq. ft. which we are selling at £4,700. To allow the purchasers to move in on a no deposit basis.....we have left them to decorate the house themselves - saving £125. In addition, after signing the contract, they are allowed possession only on condition that they agree to save £6 a week for six months. These two undertakings produce the required deposit and the occupants start off with a £4,300 mortgage.'⁴⁷

However, this still means that on the three-times-earnings ratio normally required by building societies, the purchaser still has to be earning more than £1,500 per annum.

'If building societies were prepared to accept a four times earning rule, and take account of wife's earnings, we should be killed in the rush.'⁴⁸

As the difficulty in obtaining money for house purchase is particularly great for the first dwelling purchased, special schemes to encourage and attract young people are obviously worth considering. A capital grant related to savings might be offered to young people entering a savings scheme related to subsequent house purchase. This has been suggested by both Cullingworth⁴⁹ and by Sir Hubert Newton, the Chairman of the Leek and Westbourne Building Society in an address to the Scottish

Association of Registered Housebuilders.⁵⁰ Such a scheme might tap the apparent pre-marriage affluence, and both stimulate savings and funds available for house purchase, and ease the burden of house purchase on marriage.

Various other suggestions have been put forward for making home ownership possible for more people. The option mortgage scheme was introduced to help people who paid little or no tax. The scheme allows a house mortgagee to choose a 2 per cent reduction in the rate of interest he pays instead of tax relief. Anyone opting for this scheme can have 100 per cent mortgage and this will make home ownership possible for many people, particularly young married couples, who would otherwise find it difficult to buy because of the size of the deposit required. By insisting that the option must be selected for the whole period of the mortgage, the government has limited the subsidy not only to those with very low incomes, but also to those who have no great expectation of any substantial increase in earning capacity. The increase in interest rates has also reduced the differential and made it less attractive. Even under the mortgage option scheme a family man earning £1000 per annum will be able to obtain an annual subsidy towards house purchase of only £36 per annum for 25 years on a £3000 house. If the same man received a council house to rent, the subsidy on the house, and therefore indirectly to him would be more than three times that amount. In addition council houses are being built at costs of over £4000 which is undoubtedly more than a man earning £1000 per annum could afford.

Owner occupiers buying their houses on mortgage are in effect subsidised through tax relief on interest payments. Loan interest charges are a permissible deduction from the income of owner-mortgagers in assessing income tax liability (from 1969 house purchase and improvement is the only form of loan financed consumer expenditure for which this kind of tax relief on loan interest is permitted). Additionally owner occupiers pay no income tax on the annual value of their 'equity' in the home although this is part of their real income and would have attracted tax had they let to others (and rented themselves). Furthermore, owner

occupiers are not generally liable to tax on capital gains from the sale of their houses. Thus for a house of £4,500 on a standard twenty year mortgage of $8\frac{1}{2}$ per cent the tax relief gained by a man who pays at the standard rate brings the interest rate down to $6\frac{1}{2}$ per cent. The government therefore subsidises the owner occupier irrespective of his real needs. He may be a young man with a small income and growing family trying to buy his first house, or have a house already and be trying to buy a more expensive one. The wealthier the purchaser the greater the assistance he receives. It is interesting to note that in 1968-69 the average benefit to house mortgagees in the United Kingdom by way of income tax relief on mortgage interest payment was £43.5 compared with an average benefit to council tenants by way of government subsidy £26.⁵¹ In the public sector, therefore, the dwelling is subsidised directly by central government, whereas in the private sector it is the individual who is subsidised. It must be remembered that any subsidy or tax on a particular form of tenure will divert or promote demand from or to other forms of tenure, and effect the demand for housing relative to demand for other consumer goods and services.⁵²

Alternative forms of tenure existing successfully in other countries have been drawn attention to by both Donnison⁵³ and Cox.⁵⁴

'In my opinion they order these matters better in France, where a graded system of dwelling subsidies is available to the sponsors depending upon the standards they adopt, together with freedom to the sponsors to add such extras upon which they feel they can get a return. Resultant rentals are nearer to what we would describe as 'economic rents' and a national system of generous family allowances enables the individual some freedom of choice of dwelling and of tenure, since the system applies equally to all members of the community, whether renting or purchasing in the private or state assisted sector.'⁵⁵

4.2. THE HOUSE BUILDING INDUSTRY

The role of private enterprise in providing housing falls into two main categories: builders and developers building for home ownership; and contractors, building for others, mainly local authorities. Some building organisations specialise exclusively in housing, although most carry out

other types of work as well. Needleman⁵⁶ identifies three main features of the house building industry : The great number of small firms, the importance of bespoke production and the degree of sub-contracting. Figure 4.4. shows the number of firms in construction analysed according to trade and size of firm at September 1969. It is important to remember that the level of employment in individual firms can fluctuate wildly. In addition, there is considerable movement of firms in and out of the industry. Some 25,000 changes are made annually by the Ministry of Public Building and Works to their list of firms.

Although it is generally not easy to separate housebuilding from the other activities of the building industry figures are published of the annual value of new housing construction. Stone⁵⁷ estimates the proportion of different types of construction work carried out annually and these figures are shown in Figure 4.5. The output of the housebuilding sector of the building industry is highly significant, accounting for 25 per cent of the total output, in new work and a further 12 per cent in repairs. Moreover, there has been a considerable increase in the total output value in recent years. In 1960, the total output was £685 million, by 1968 it had reached £1,600 million.⁵⁸

The actual capacity of the construction industry to produce houses is obviously limited by the resources available. This country devotes less in terms of capital and manpower to construction than do other countries of a similar size. In 1966, we devoted 3.5 per cent of our Gross National Product to housing, compared to Italy's 6.2 per cent and France's 6.3 per cent. Similarly we are building fewer dwellings per 1000 inhabitants than other countries. Between 1962 and 1967, this country constructed 6.9 houses per 1000 inhabitants compared to 7.1 in Italy, 7.7 in France and 10.1 in West Germany.⁵⁹ However, these figures do not necessarily indicate higher standards as a greater proportion of gross national product might be spent on housing for a number of other reasons; for example, low standards in the current stock, an inadequate supply of dwellings; a rapidly increasing population, or a low level of productivity in house construction.

Trade of Firm	Nil/1	2-7	8-13	14-24	25-34	35-59	60-79	80-114	115-299	300-599	600-1199	1200 and over	Total
General Builders	7,726	15,631	4,018	2,817	1,022	944	309	188	232	41	8	5	32,941
B & CE Contractors	186	562	398	407	236	326	171	175	287	123	63	49	2,983
Civil Engineers	174	446	202	228	112	126	54	55	83	35	19	10	1,544
Sub-Total	8,086	16,639	4,618	3,452	1,370	1,396	534	418	602	199	90	64	37,468
Plumbers	2,291	4,182	818	436	119	75	22	16	—	19	—	—	7,978
Joiners and Carpenters	1,694	2,748	441	229	88	57	10	15	15	—	—	—	5,302
Painters	5,482	5,572	825	443	143	128	46	29	42	—	—	—	12,720
Roofers	272	702	189	159	50	39	14	11	11	—	6	—	1,453
Plasterers	673	1,584	286	191	77	53	34	23	—	16	—	—	2,937
Glaziers	32	92	58	53	17	22	8	—	—	9	—	—	291
Demolition Contractors	40	111	66	39	23	8	—	10	—	—	—	—	297
Scaffolding Specialists	—	—	20	13	8	8	—	—	7	—	7	—	95
Reinforced Concrete Specialists	32	108	35	34	8	9	—	—	14	—	8	—	253
Heating and Ventilating Engineers	103	490	249	185	90	116	47	36	41	9	10	7	1,383
Electrical Contractors	762	1,830	697	480	156	167	57	45	58	12	—	—	4,277
Asphalt and Tar Sprayers	—	—	49	34	28	21	9	6	9	—	7	—	246
Plant Hirers	201	487	213	199	60	112	34	16	26	—	9	—	1,357
Flooring Contractors	144	304	100	76	23	23	6	7	9	—	—	—	697
Constructional Engineers	39	87	51	81	30	44	13	26	29	17	—	6	423
Total	19,866	35,029	8,715	6,104	2,290	2,278	842	663	899	270	136	85	77,177

Figure 4.4 : Number of Firms in the Construction Industry ; by Trade and Size : April 1969.

Source : M.P.B.W.

Figure 4.5. : The Relative Importance of Different Types of Construction Work in Great Britain

Housing and Low flats	24 per cent
High flats	1 per cent
Universities, Schools, Hospitals	5 per cent
Industrial Buildings	15 per cent
Offices and other commercial buildings	11 per cent
Civil Engineering	<u>14 per cent</u>
TOTAL NEW WORK	70 per cent

Repair and Maintenance	
Housing	12 per cent
Civil Engineering	9 per cent
Other buildings	<u>9 per cent</u>
TOTAL REPAIR AND MAINTENANCE WORK	30 per cent

Source : Stone, P.A., Building Economy. Pergamon Press 1968.

4. 3. THE RELATIVE EFFICIENCY OF PUBLIC AND PRIVATE HOUSEBUILDING

The efficiency with which new building programmes are managed affects not only the construction industry, but also the economy generally.

It is clear that local authorities' dwellings take longer to complete than private houses. It is also clear that the output per man on private housing work is significantly higher than on local authority building.

As most local authority building is carried out by private contractors, both private and public sectors are utilising the same organisations.

In 1967, 404,356 dwellings were completed, 203,918 in the public, and 200,438 in the private sector. During that year 196,000 workers were on average employed on public, and 143,000 on private housebuilding.

The number of dwellings completed per employee was therefore 1.0 in the public, and 1.4 in the private sector.⁶⁰ Similarly the value of output of new housing per employee in 1967 was £500 lower in the public sector (£3,600) than in the private (£4,100).⁶¹ Comparable figures for 1968 are £4,031 and £4,601 which show an increased difference. This is despite the organised and larger scale nature of public housing.

The position is similar regarding completion times, that is the time taken from start to completion of a dwelling. The Ministry of Housing's figures indicate that private housebuilding takes 12.1 months per dwelling as against 15.9 months per dwelling, for public housebuilding.⁶² That is private housebuilding is 1.3 times as productive as public housebuilding. Contractors also contend that private houses could be completed even faster if there were buyers immediately available.

The obvious conclusion is therefore that contractors can make more profit from speculative building than from public authority building. Slower completion times are probably the result of greater control and supervision over standards on local authority sites. In drawing conclusions from these figures certain reservations must be made. Housebuilding in the public sector does not function in the competitive manner of the private sector. In a competitive market there is a tendency for resources to be efficiently employed in the uses which

consumers value most, and as has been discussed earlier both private and public sectors are competing for material and labour resources. In making any comparative assessment of productivity it is essential that the units compared should be similar. For example, the size of dwellings differ in both sectors. In the private sector the average size of dwellings, measured by number of bedrooms is considerably larger. In 1967, the average number of bedrooms produced per man year was 2.4 in the public and 3.9 in the private sector.⁶³ This, therefore, indicates an even higher rate of private over public productivity.

There are however wide differences in efficiency that are known to exist between contractors. A study carried out by the Building Research Station⁶⁴ found that the labour costs of some contracts was almost three times that of others. The variation being accounted for mainly by quality of management. Lastly, the length of time taken in construction may not necessarily reflect any increased efficiency. Though a house may be built in 12.1 or 15.9 months it is not necessarily economic to choose the shorter period. As Gray⁶⁵ points out total costs for a short building cycle may be higher than for a longer one, depending on rates of sales and incentives that have to be paid.

There is evidence⁶⁶ that public housebuilding costs have risen faster than the prices of new private houses although an exact comparison between costs and prices is not possible. Since 1959 the average number of bedrooms per dwelling has risen to a point where more than 75 per cent of all new dwellings completed in the private sector in 1967 had three or more bedrooms. In the public sector the number has remained constant at 42 per cent.⁶⁷ Nobay⁶⁸ goes on to compare indices of investment in housing and the actual output of houses. Although investment had risen more rapidly than output in the public sector he found that investment and output in the private sector were closely correlated. The apparent explanation for this is probably due to the increasing use of Parker Morris standards, the use of industrialised building techniques, and the increase in high rise building.

These latter factors both involve additional cost and are largely insignificant in the private sector. Building to Parker Morris standards was said to cost about £400 per dwelling in 1967⁶⁹ and the proportion of tenders approved to Parker Morris standards has trebled since 1964.⁷⁰ Since 1969 they have of course been mandatory for all public house building. In 1966⁷¹ industrialised building techniques were slightly more than 5 per cent above traditional costs, and since 1964 the proportion of new public housebuilding using industrialised methods has doubled to 40 per cent.⁷² Similarly the proportion of flats of five storeys or more has doubled in the period since 1960.

Clearly in the present economic situation and with the size of public housing programme, it is necessary to know more accurately the causes of the anomalies of productivity that exist between the private and public housebuilding sectors. The rapidly rising costs and low productivity does not compare well with pre-war activity.

'In the post war period there has been little 'speculative' building : the builder has been working to the orders of outside owner and architect, and that owner has often been a local authority which has had difficulty in keeping a consistent policy under pressure from government directives, ratepayers and actual or would be housing tenants. It would not be at all surprising that it should have been easier to obtain high labour productivity with the pre-war ('speculative')⁷³ than with the post war type of organisation'.

4.4. THE STANDARD OF PRIVATE HOUSEBUILDING

The standard of design of private enterprise housing has been a concern of architects and critics for a long time. In 1961 Ian Nairn⁷⁴ commented :

'Very slowly and with no thanks to most of the speculative builders, design is improving. More trees are left, housing units are cleaner and crisper, and - just occasionally - are grouped in patterns which may produce a sense of place. The proportion is small, perhaps ten per cent but it cannot be ignored.'

After giving the credit for this increase in design standards to a combination of Span, the change for the better in public taste and to the

planning offices, he goes on to define speculative building :

'it is English compromise at its worst, a huge industry geared to mass produce the answer to a million individual dream of a house with a garden... it provides only a fraction of the answer to a real environment, and at a fearful cost, the cost of breaking up the pattern of the town and countryside permanently and replacing it with suptopia. '

R. Furneaux Jordan⁷⁵ in an article about the speculative builder as patron of modern architecture drew attention to the objections to speculative building prevalent in the architectural profession at that time.

'The objection of architects to spec building has normally been at least as much a snobbish and trade union objection as an aesthetic one, an attitude of hurt dignity that they could easily be dispensed with just as if it were not their own fault. '

The determination of architects to prove that they were essential to the world of housebuilding has been conspicuous by its absence.

Eric Lyons, consultant architect to one of the country's leading developers, Span Limited, has said :⁷⁶

'Although architects are united at least in their resentment of the despoliation of town and country, it seems that very few architects are prepared to interest themselves seriously in the developers problems. '

If we look at the post war housing effort in Great Britain documented in magazines,⁷⁷ although much of it is of major significance, it is primarily public sector housing. Yet from recent evidence most British families would still prefer to own their homes, even at a substantially increased cost to themselves. The IEA's 'Choice in Housing' survey of 2,000 householders⁷⁸ found that, despite extra upkeep costs, 52 per cent of tenants would prefer to buy a home, and an overwhelming majority of these householders were prepared to pay at least ten shillings a week extra to do so. Similarly a survey carried out by the opinion Research Centre⁷⁹ shows households preferences for types of house showed a marked preference for detached and semi-detached houses and bungalows. The survey asked people to state their preferences in relation to their imagined ability

actually to acquire the property of their choice. The preferences stated were 43 per cent for detached houses, 36 per cent for semi-detached house, 8 per cent for terrace houses, 12 per cent for flats in low blocks and 1 per cent for high rise flats. The criticism of private housing voiced by architects is a criticism of housing form that is highly desirable for many people. The reasons for this have been comprehensively discussed by Cowburn⁸⁰ and Rapoport⁸¹ but can be briefly related to the freedom of choice and expression in private housing that does not exist in public housing.

'Choice is the corollary of individualism and the ability to choose is a positive good because societies are then kept fluid, with constant possibilities for social change.'⁸²

The private house on an estate despite its many faults, so apparent to the architect gives its inhabitants some measure of control and more options than does the project which is less responsive to the test of a competitive market. For the architect working in public housing the views and desires of the consumer can be more easily ignored than the private builder, whilst he may be doing a much better job in other respects. Dennis⁸³ pointed out the different values that architects and consumers generally have by their backgrounds and experience. The importance of this difference can be seen in the much higher rate of user satisfaction of housing estates catering for 'middle-class' owner occupiers with attitudes and aspirations similar to those of the designer.⁸⁴

4. 5. THE DESIGN OF HOUSING IN THE PRIVATE SECTOR

The primary aim of builders in the private sector is to design a house that sells well. Traditionally the builder and his architect have relied upon their obvious close contact with prospective clients to provide them with a continuing source of knowledge of consumer requirements. Whereas this method of operating still exists, particularly amongst small firms, more and more firms are using market research techniques in an attempt to improve productivity. This is reflected in different ways : at a recent conference⁸⁵ of private housebuilders

three of the six papers were directly related to 'marketing' in housing. One paper by Mansfield⁸⁶ described the exhaustive market research carried out by his firm, based in England, before they entered the Scottish market. The success of their methods was apparent from their turnover of 500 houses per annum achieved in a very short space of time. Norman Franklin⁸⁷ an architect with Wates has recently described his companies approach :

'In assessing the market, Wates is considering using research skills developed in other consumer industries where it has been found better to accept the customer as he is and to change the thinking of the company to match the purchaser.'

A recent survey carried out by the Building Research Station⁸⁸ found that whilst builders were generally aware of factors that would improve the quality of their design, the economic viability of any project came first in their list of objectives. For the small builder the activity of speculative housebuilding is risky enough in itself. To pioneer new ideas in design therefore just adds to his risk, with the result that he generally adopts well tried and popular forms of housing -

'The public are our educators because if we can't sell we are out of business.'⁸⁹

From information gathered in this survey the design activity consists of briefing the architect to produce a house type which may be to fill a specific gap in the builders vocabulary, or to produce a house to a specific price. Several designs would be produced, costed and vetted by the builder (or sales director of a bigger firm). From the selected house a set of standard drawings would be produced and added to the range of house types from which layouts would eventually be produced. As the layouts would be produced from any of the standard plans all the house types tend to be 'universal', in that they must be capable of meeting all anticipated site conditions.

The survey also identified a number of factors that were inhibiting a more imaginative or experimental approach to design. Builders were generally aware of current architectural and planning opinion and ideas, but held the view that there was a minimal gap of 10 years before these were acceptable to the consumer. In addition, they were aware that

some building forms offered considerable potential in improving the visual quality of estates, but that they could not use them because of connotations they had with 'local authority' and high density' development. For this reason, terrace houses, were avoided, or used where they could be offered at a very low cost.

The third and most important factor concerns, the design and eventual management and maintenance of open space in the estates. Providing landscaped open space brings problems which most private developers and builders are not prepared to face. The main obstacle being in making satisfactory arrangements for care and maintenance after the last house is sold. Attenburrow⁹⁰ quotes a north midland builder :

'The bread and butter developer, such as ourselves, would not be prepared to have a responsibility for any development after the last house is sold. What we want to do, though this may be ethically wrong is to raise our hats after we have sold the last house and look for the next development. The provision of open space is only possible if the local authority is prepared to take over the responsibility of looking after it. Also the building societies will not up their valuations to include landscaping and layout of high quality.'

The latter point is reinforced by the views of Eric Bibby,⁹¹ the managing director of Span :

'For Span the great struggle is not to sell the houses we build but rather to get the building societies to value the 'externals' on a significantly different basis from the standard semi-detached, road fronting solution.

There is also a conflict of interests between the profit making motives of the developer and the local authority. The developer wanting to get as many houses on the site and to him open space representing waste space; the local authority on the other hand are not always keen to take over open space themselves as it increases the burden on the rates.

There are generally successful examples of various forms of management organisations which have been set up in the private sector to maintain communal open areas. The types of management organisations formed vary as each estate differs in detailed design and tenure.

The majority of estates that have established successful management and maintenance are leasehold. The Leasehold Enfranchisement Act, 1967¹ makes the lease as a basis for management arrangements, virtually useless, and very few new estates will be leasehold in future. The main categories of management organisations can be defined as :

- a. Estates managed by the residents themselves, either directly by a committee of residents themselves, or through the agency of a local firm of estate agents (e. g. The Brake, West Hagley). This method, though viable until the Leasehold Enfranchisement Act, placed considerable pressure on the residents' association. Span operate an extended version of this at their largest development, New Ash Green. Householders are bound by covenant to pay a lump sum and subscriptions to a residents' association, and the maintenance includes such things as external house decoration.
- b. A management company can be established with control vested in a local independent professional firm chosen by the developer (usually estate agents). The developer retains ownership of the amenity land and grants a long lease to the management company. The local agents then have to account to the residents on how their money, raised by a service charge, is used.
- c. A trust can be set up, such as the Garden Trust, which Wates have established at Turnpike Hill, Croydon. Under this method the amenity lands on an estate, including roads and footpaths, are jointly owned by a custodian trustee (such as a bank). The responsibility for the management and maintenance of the amenity lands are in the hands of managing trustees (usually a firm of local surveyors). Each house owner on the estate is then obliged to pay an annual service charge to the managing trustee, and failure to do so removes the right to use the amenity lands. Houseowners also retain the power to change and appoint the managing trustees, and through their approval to the annual budget, to control the general expenditure on maintenance. This latter method appears

1. The Act gives a leaseholder who occupies a house under a lease of more than 21 years at a ground rent, the right to buy the freehold, and to resell it, thus disposing of any obligations which may have been tied while he was a leaseholder.

to be the most satisfactory from the point of view of the developer who can withdraw from the scheme when it is completed.

4.6. THE NATIONAL HOUSEBUILDERS REGISTRATION COUNCIL

In recent years the National House Builders Registration Council has grown to become the central organisation representing the private housing sector. Originally set up in 1936 it received statutory recognition by the labour government after the war. In spite of government backing, growth in membership was slow and by 1964, less than 25 per cent of private housing was dealt with by the NHBRC. Due to pressure from other organisations involved in housing, (including the building societies and the Royal Institute of British Architects), the Minister of Housing and Local Government made it clear to the industry in 1966 that unless private housebuilders registered voluntarily he would make registration compulsory.⁹² As a result of this the membership doubled in 1966 and now stands at some 7,000 firms who are building 80 per cent of private houses now under construction.

The principal objective of the NHBRC is to improve the quality of housing in the private sector, and it sets standards of construction, specification and workmanship on the basis of which a 10 year guarantee against structural defects is given to the purchaser. Houses are inspected regularly during construction and when completed are issued with a certificate. Once a house is certified, a builder guarantees a purchaser for two years against all defects, and for a further eight years after completion the NHBRC guarantees the purchaser against structural defects up to £2,500 per house. The NHBRC also assumes full liability in the event of the builder going bankrupt.

A handbook⁹³ has been produced which sets out the minimum standards, including alternative specifications, acceptable to the NHBRC. Many of the amenity and space standards found in 'Homes for Today and Tomorrow' are dealt with but not made mandatory. In many cases the standards set are higher than the nearest British Standard.

4. 7. STANDARDS IN THE PRIVATE AND PUBLIC SECTORS

By comparison with public authority housing the form of post war private housing estates has changed very little from its pre war counterpart. The only noticeable change has been a slight raising of density and more adequate provision for the motor car. Builders⁹⁴ still consider the ideal house is detached, with a garage within the curtilage of the plot, having a small fenced garden at the rear. Design objectives introduced by architects in the public sector which have influenced layout design (for example the objective of safety achieved by traffic separation) have been found by builders to increase their costs⁹⁵ without increasing their sales.⁹⁶

'Whilst local authorities and some architects endeavour to force uneconomical designs and layout patterns through, these do not necessarily make homes better or sell them more quickly; an example is the radburn system.'

Similarly, whilst the majority of layouts have not radically changed neither has the design of the individual unit. The development of house planning in the public sector has been considerably influenced by the mandatory requirements and recommendations introduced by the Parker Morris report⁹⁷ in 1961. This report says :

'the problem of designing good homes is the same whoever provides them and this report is applicable to private enterprise and public housing alike.'

Improved standards have to be paid for, and Attenburrow⁹⁸ therefore investigated how far recommendations contained in the Parker Morris report had been met by private housebuilders. (See Figure 4. 6.) He found that whilst the majority of dwelling types in his survey were at or above the minimum overall space standards, it was the sub-standard houses that formed the largest part of their sales. One builder said :

'We'd all like to build to Parker Morris standards but not every purchaser can afford them. We're up against the building societies yardstick of two and a half to three times a man's income being the maximum advance. If we build to Parker Morris we cut off a large proportion of potential house purchasers.'

The size of house purchased in the private sector is in any cast not related to family size but to the ability of the family to pay for it. It is likely

therefore that in the smaller houses there will be over occupation, and the larger more expensive ones under occupation.

In other detailed aspects the survey confirmed the widely held view that builders put great emphasis upon the quality and size of the kitchen as a sales feature, but that the provision of living rooms and WC and bathrooms often fell below the recommended standard. The differences between public and private housing design are particularly interesting. In the former there is a consistent uniformity in the allocation of space to living and bedrooms, a consistent attempt to provide a greater degree of flexibility in the use of these rooms. Kitchens in both sectors appear to be comparable from an overall space point of view, with a better work sequence in the public sector, and more expensive fittings in the latter. An important question that warrants further investigation is whether the difference between the designs in public and private sectors represent features which help to 'sell' private housing, or whether they reflect a more fundamental divergence in the way of life of the potential occupants of the two forms of housing.

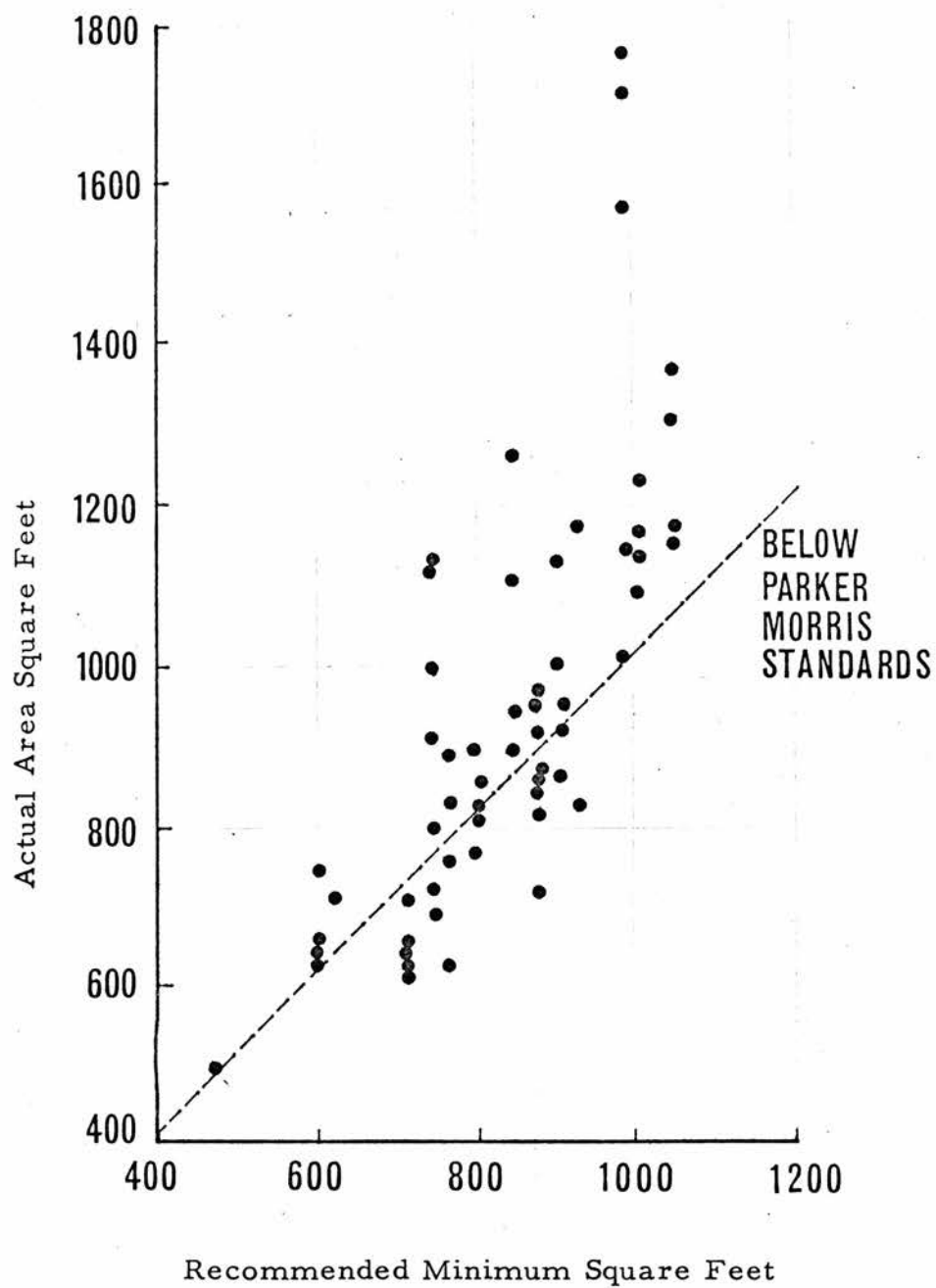


Figure 4.6 : Areas of Private Housebuilders' Plans
in comparison to Parker Morris Space
Standards.

Source : Building Research Station.

Housing in the United Kingdom is rigidly divided between individual tenants on the one hand (both private and council) and individual owner occupiers on the other. — If present trends continue the only choice for future generations may well be between owner occupation and council tenancy. The privately rented sector has shown a rapid decline since the first world war, for, whereas in 1914 more than 90 per cent of the houses in England and Wales were rented from private landlords⁹⁹ according to the latest report of the Housing Corporation¹⁰⁰ the proportion is now 22 per cent. The advantages and disadvantages of both council tenancy and owner occupation have been discussed previously. These methods of acquiring accommodation have become accepted as the only ones possible but there is much to be said for making the means of supplying houses more flexible and of developing forms of tenure that could combine the advantages of both the established housing sectors.

5.1. THE HOUSING SOCIETY MOVEMENT

To the many exponents of housing societies and tenant cooperatives¹⁰¹ it has been obvious for some time that opportunities exist in this country for the development of a system of housing provision and management that is so well known, and has been so successful elsewhere. Abroad there are many examples of housing societies and tenant cooperatives. In Sweden one in four houses are provided in this way. In Denmark, East Germany and Switzerland the proportion is one in seven, in Austria and West Germany one in ten. Tenant cooperatives are also well established in other parts of the world. In the United States they have been in existence since 1927 but have made spectacular progress since the end of the second world war.¹⁰²

Compared with elsewhere, the progress of the housing society movement in this country has been negligible. The origins of the present movement can be seen in the work of nineteenth century philanthropists such as Owen, Cadbury and Leverhulme, and the principles of participation and shared responsibility evident in the design of

New Lanark (1820), Bournville (1879) and Port Sunlight (1888). In the early twentieth century the garden cities of Letchworth (1903), Welwyn (1920) and Hampstead Garden Suburb (1925) were all built on the lines of housing societies to meet the needs and resources of a wide section of the population. The principles involved in housing societies and tenant cooperatives have been generally lost in Britain since 1919 when responsibility for providing large numbers of houses for the lower income groups was given to local authorities. Cooperative action has progressively given way to a democratic local government structure with responsibility for all public services of which housing is but a part. A direct result of this and the consequent subsidising of occupants unable to pay the true costs of rent, has been to deny the recipients the opportunity to say what form they would like both their housing and social environment to take.

Until the sixties the majority of housing societies that were set up in Britain were established on a charitable basis to meet the needs of specific sectors of the community, usually the poor and old. Some of these societies are in fact large charitable housing trusts, such as the Peabody and Guinness Trusts, and have considerable financial assets of their own. These trusts can also borrow on mortgage from local authorities and their work tends to be specialised and low cost. Most of the housing societies formed until 1962 were affiliated to the National Federation of Housing Societies, whose membership rose from 35 societies in 1935 to 650 in 1961. Until 1962 then the housing society movement in Britain concentrated on the poor and needy, and there were no 'cooperatives' in the overall sense of the word, i. e. in obtaining the participation of their tenants in organisation and management of the societies.

5.2. THE HOUSING CORPORATION

The limited range of choice available within the post war housing provision was first recognised at government level in the early 1960's. The Housing Act, 1961, provided a fund of £25 million for loans to housing

societies in England and Wales to provide rented dwellings on a non-profit making basis. The National Federation of Housing Societies was called in to administer the scheme under which direct government loans were made available to meet up to 100 per cent of the approved cost of building new dwellings for cost rent letting without subsidy. The Housing Act (Scotland) introduced similar legislation for Scotland and set up a fund of £3 million.

By 1964 with the funds practically exhausted and some 6,000 dwellings constructed the demand for this type of agency had been clearly established. This success led to provisions in the Housing Act, 1964, for the setting up of the Housing Corporation to further the growth of well organised societies. The aim was the establishment of a central administrative body or agency, which could direct and guide the activities of cost rent and coownership schemes, giving advice on legal, technical and architectural matters; and in conjunction with Building Societies provide 100 per cent finance. The financial policy of the Corporation at present is to lend up to one third of the total cost of any approved housing project as security for a mortgage; the housing society itself raises the remaining two thirds directly from a building society. The building society charges current rates of interest but the Corporation charges an additional $\frac{1}{4}$ per cent as second mortgagee. The loans in both cases are repayable over 40 years rather than the usual 20 or 25 years. The Exchequer makes available loans up to £100 million to the Corporation for the purpose of making advances to the societies. In addition, the building societies can offer double this amount making a total of £300 million available for the programme of cost rent and coownership housing.

Initially the cost rent societies were the most popular and by the end of the first year of operation 161 cost rent societies had been formed compared with 31 coownership societies. In 1966 a further 155 cost rent societies were registered compared with 63 coownership schemes. However, with modifications to the financing of coownership societies and the introduction of the Mortgage Option Scheme the situation rapidly changed. Many cost rent societies began to promote coownership schemes

as well and by the end of 1968 there was a total of 527 coownership societies compared to 471 cost rent societies. The modifications to the financial arrangements were that the Housing Corporation was able to arrange 100 per cent mortgages, whereas before the maximum was 95 per cent; and that by taking advantage of the Mortgage Option Scheme coowners could enjoy a 2 per cent advantage over cost rent in the matter of interest charged. From the 1st January 1970 the option mortgage subsidy limit was raised. An increased subsidy becomes available when the interest rate exceeds 7 per cent; the maximum subsidy being 3 per cent.

The growth of housing societies has been considerable since the 1961 Act. Figure 5.1. illustrates this. Some of the societies operating under the Housing Corporation are offshoots of the associations and trusts mentioned earlier but the majority have been constituted in response to the setting up of the Housing Corporation. The word society has been adopted to distinguish cost rent and coownership groups from the housing associations of the more traditional kind. By April 1969, the Corporation had approved a total of 615 schemes for 25,153 dwellings at an estimated cost of £112 million of which 75 per cent were for coownership.¹⁰³ If the economic climate of the mid sixties could have been maintained there is no doubt this performance would have been far more impressive.¹⁰⁴

5.3. TYPES OF HOUSING SOCIETIES

The Housing Corporation established two distinct forms of housing society, the cost rent and the coownership society. Whilst both must be registered under the Industrial and Provident Societies Act and may not trade for profit there are fundamental differences between the two.

a. The cost rent society

The basis of this is a short term tenancy on the lines of the traditional tenant - landlord relationship which is well understood and established in this country. There is however a difference in the quality of the relationship, the principle difference being that whereas the rent charged

		No. of Societies	No. of Schemes	No. of Dwellings	Estimated Total Cost (£)
1961 ACT	March 1962 to March 1968	41	88	5,775	23,019,042
1964 ACT	to March 1965 to March 1966	65 259	18 114	1,100 5,280	4,316,000 30,808,930
Housing Corporation Schemes	to March 1967 to March 1968 to March 1969	507 839 1,090	330 521 615	13,737 21,403 25,153	56,137,322 91,821,170 112,224,048

Figure 5.1 : Growth of Housing Societies 1961 - 1969.

Source : Annual Reports of the Housing Corporation.

by a private landlord includes a profit element the rent charged by the society does not. In addition, the manner in which the society meets its responsibilities for management and maintenance of its estates will only usually be equalled by the best of private landlords.¹⁰⁵ However, whereas the cost of the council house is usually subsidised the rent of the cost-rent tenant is not.

The actual rent itself is calculated on expenditure on mortgage repayments plus maintenance, insurance, etc., and thus a stable rent is established which becomes increasingly more attractive with the passage of time and which does not fluctuate with market demand. The present high rate of interest charged by building societies has checked the number of schemes being produced in this way.

The demand for cost-rent accommodation comes mainly from young families who can afford to live near the centre of cities where this type of accommodation is increasingly in short supply. In addition, the negligible capital investment coupled with the degree of mobility offered appeals to many families, even with high incomes.

The combination of present high land and building costs produces problems for the designer in the compilation of a brief for these central areas. Inevitably high densities have to be aimed for but high rise solutions, both from an amenity and cost point of view are unacceptable. It is these sorts of problems that have led in the public sector to the lowrise high density solutions in the London Boroughs.¹⁰⁶ What has yet to be proved by cost-rent societies operating in these areas, is the acceptance by the tenant of the cost of providing accommodation of this kind. Some of the most successful cost rent societies have been in the suburbs where they have been able to provide a higher standard of design of house and layout. There appears to be a market amongst families who cannot afford specially designed one off houses, but who are looking for better value than the standard speculative estate offers.

b. The coownership society

This method is gaining rapidly in popularity and in addition to new societies many cost-rent societies are turning to coownership. The

coowner has all the advantages of the cost-rent tenant and in addition many of the advantages of owner occupation. As with cost-rental the occupier of a coownership house will have all expenses, legal fees, etc., included in the capital cost of the scheme. Only a small initial deposit is required and his outgoings are fixed by the society, and cover repayment of interest and capital on his share of the mortgage, cost of maintenance, insurance and management of the estate. The society itself selects prospective tenants and does not impose the same stringent qualifications as a building society. This benefits those who because of age or sex may find it difficult or impossible to obtain the usual mortgage as an individual owner occupier. A form of ownership is therefore available to people who are without capital and who because of either age or sex are not acceptable as a good risk to building societies. The deposit required is relatively small and is held against rent arrears, dilapidations and damage and is refundable. In practice most societies limit this amount to three or four times the monthly rent. Because the repayment period is 40 years instead of the usual 20 or 25 years the monthly repayments are low, and in addition, the coowner is eligible for tax relief in the same way as the owner occupier. He never secures the equity of the house he occupies, as this always remains with the society. Providing he stays for five years he will, on leaving, get back most of the rent which has been used to pay off the capital debt on his house and in addition a share in any appreciation of its value. This share is calculated using procedures approved by the Housing Corporation. Similarly if the property value falls instead of rises then an appropriate deduction will be made. Coownership appears to offer the following advantages as a form of tenure :-

1. The coowner can participate in the management of the estate and influence the community of which he is a member.
2. The coowner qualifies for tax relief or is eligible for the mortgage option scheme subsidy. Societies usually prefer the latter as it gives the occupier an immediate saving in rent.
3. Upon leaving the society the coowner gets back any capital paid off his house and a share in its increase in value. The rent is subsequently increased for the next coowner based on the revised value. At present a five year residence period is necessary to qualify for these payments.

4. The coowner remains much more mobile than either a private owner occupier or a council tenant as the termination notice is short.
5. In the long term when the society has paid off its mortgage then the coowners outgoings will be confined to upkeep of the property.

5.4. BACKGROUND TO THE WORK OF HOUSING SOCIETIES

Housing Societies operate under considerable financial pressure. They receive no subsidy and have to be competitive with both local authority and private housebuilders. There is not as yet a large body of applicants, and usually custom has to be attracted quickly - during the course of construction. This financial and commercial consideration has an influence on the way societies design, build and market their houses. It also has an important effect on the Housing Corporation's own policy particularly influencing the degree of risk that can be taken with public money. Since 1965 building costs, land costs and rates of interest have all increased whilst incomes have generally not kept pace. There is therefore a need for schemes to be more consumer orientated than in the public sector. Without a building subsidy of any sort any increase in cost brings a direct increase in rent. The assessment of economic rents by consumers is also optimistic¹ and the economic viability of all schemes is essential. Nevertheless housing societies do derive four distinct marketing advantages :-

1. There is no necessity for bridging finance as the entire cost is borne between the Housing Corporation and the Building Societies. The availability of this finance can inspire confidence in a contractor resulting in favourable negotiated contracts.
2. The composition of the housing society team is a consortium of experts in all aspects of housing. Professional fees are paid but each member performs his client function voluntarily. Overheads are therefore kept to a minimum.
3. At all stages of design assistance by the Housing Corporation, its

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1. A National Opinion Poll found that the average person in the midlands considered a fair rent was between £3 and £4 per week for a standard 3 bedroom house. At present costs and interest rates the non-profit rents for such a house would have to be at least £6.5 per week.¹⁰⁷

advisers, the National Building Agency, the district land valuers is given and a large and ever increasing body of knowledge becomes available.

4. The marketing cost to a housing society is less than that to a private developer selling houses on a speculative basis. The Corporation itself organises a central advertising campaign. The extended mortgage period means rents or coownership payments can be kept below normal mortgage repayments.

In addition, standards aimed at by the societies have been high.

Architects are employed on all their schemes and Parker Morris space standards have been maintained. The plans of houses and layouts must be vetted and approved by the National Building Agency (in Scotland this function is carried out by the Scottish Special Housing Association) acting on behalf of the Housing Corporation. Societies are therefore offering good value for money, high standards in all senses, and unique terms of tenure to a new and expanding sector of the market. It is on these aspects that societies expect the ultimate success of their efforts to be based.

5.5. THE FUNCTIONING OF HOUSING SOCIETIES

The housing society is theoretically run by a management committee of eight or more people. In practice because speed of action is necessary in so many of the society's operations a small number of people, usually one or two, actually coordinate activities.

Probably the most difficult of all the societies operations is finding a suitable unregistered site at a reasonable cost. The site has to be bought at the district valuers valuation and there are many problems in this. Usually the district valuer will want to see the societies proposed scheme before giving this valuation, and this can mean a considerable amount of possible abortive work by the consultants. Good building sites do not stay on the market for very long, in any case, and the length of time involved in preparing sketch schemes often means sites have been sold in the interim period. Most private developers retain an estate agent to watch the land market for them, but although in principal this system could be applied to housing societies, there are in practice no funds

available to pay for it. From the vendors point of view, looking for a good price and rapid sale, selling to a housing society is not an attractive proposition. The situation becomes even more complex if the land is not already zoned for residential development. The time and cost involved means that neither the district valuer nor the Housing Corporation like to consider this sort of land. When they can be persuaded to do so it is usually the society that has to deal with obtaining approval on behalf of the vendor. In this respect the land levy is positively helpful because the vendors architects fees cannot be offset against the society's price for the land.

In assessing a land value the district valuer needs to know the proposed rents, and will therefore expect to see layout plans and estimates of cost. In addition, he will require to know considerable detail about the land (covenants in force, rights of way, etc.) which can involve considerable search time and cost. He will himself have decided views on the rent relative to the demand in the area which will affect the form and possible layout of the scheme. He should therefore be consulted at the earliest possible moment in a scheme development.

To consider an application for a loan the Housing Corporation needs to be in possession of a considerable amount of information. A proposed design for the scheme is clearly the first requirement but this needs to include in addition to plans and a written description of the site, copies of existing planning approvals and detailed plans of what the society intends to build. They also require a report from the society estimating the cost of the scheme and the proposed rental system. A separate report from the district valuer is obtained agreeing this latter point and also that the price of the land is the 'open market value.' The society are also required to provide the Housing Corporation with confirmation that a building society is prepared to provide the other 2/3rd. of the loan. Finally a report is also obtained from the National Building Agency (or Scottish Special Housing Association) confirming their approval to all aspects of the scheme, i. e. that it meets the required standards (Parker Morris, etc.), that the estimates are correct, that it represents good value for money. Again although this final report is not written until after the formal application has been made, and therefore after all the

the previous information has been provided, prior consultation is essential, as any revisions the NBA may require would mean alterations in the basic application. From the point of view of the architect working for a housing society, a considerable amount of abortive work may be involved, the majority of which must be completed before even the land can be bought.

5.6. THE ARCHITECT AND THE DESIGN OF HOUSING SOCIETY SCHEMES

Housing society schemes have considerable advantages over private sector schemes in that the common ownership of the land and property enables the design and maintenance of the scheme to be dealt with in a more imaginative and satisfactory way. Although the schemes themselves have usually been small the Housing Corporation's policy of always employing architects has undoubtedly been partly responsible for the high standard achieved. In addition to employing architects with established reputations many new and promising architects have been used and the ideas and impetus they have brought to the housing society sector is clearly evident.

'Coownership offers a new form of tenure and this presents architects with the opportunity to tackle a new range of housing problems with imagination and enthusiasm. Joint ownership by the residents of the land and buildings and the shared services and facilities has led to the development of integrated designs which put less emphasis on the separate dwelling and more emphasis on the whole environment. 108

This extract from a report to the Central Housing Advisory Committee by the National Building Agency is based on their advisory service to the Housing Corporation and they more than anyone are in a position to draw these sort of conclusions. The method of financing the coownership scheme also allows the architect to work to a much broader brief and within one development he can incorporate a variety of house types to meet diverse and specialised needs.

'The most forward looking private developer, building for sale, must have regard to the finance available to each customer and he is unlikely to build for sale to the single, or elderly. A brief for a coownership scheme, on the other hand, can incorporate a mix of dwellings resulting in a mixed community.' 109

The development of a housing society coownership scheme can be programmed over a long period of time as additional finance can be raised as the value of the whole estate increases with time. This means that not only can facilities be provided which were originally foreseen but could not be afforded, but also that the original layout and land usage can be changed as needs change.

'With the possibility of improvements in mind the initial design can show how spaces outside the dwellings may be ultimately used. A site or sites can be allocated for a clubroom, a nursery school, workshops (for car maintenance or carpentry), a laundry room, etc. Private gardens can be positioned so that they open onto shared gardens, allowing the society to extend one or other according to changing needs. The shared garden may eventually be laid out for recreation such as tennis or bowls. Even the provision of a future pool can be borne in mind at the initial design stage.'

110

The architect of a housing society scheme can find himself in a position which has no parallel in the public and private sector, namely that of being his own client. The initiative of the architect is a factor which is often exploited by housing societies and architects are allowed professionally to take commissions from societies of which they themselves are members. The only exception to this rule being that they are not allowed to take commissions from societies of which they are chairmen. This restriction coming from the Council of the Royal Institute of British Architects. The architect is therefore closely involved in the development of a scheme from the earliest 'inception' stage and in cases where they actually occupy a house in the scheme the feedback stage assumes unique character. The architect will be in possession of all the background to the decisions around the formulation of the brief and at the design stage will be in a much better position to know which 'constraints' may possibly be relaxed. He will also have the opportunity to establish 'user' requirements in addition to those of the client. In the majority of cases the values and ideals of the 'user' will often be similar to those he possesses himself. It is interesting to note the success of the essentially 'middle-class' housing society schemes in meeting user requirements.

111

The role of the architect is to contribute his special skills to the collective expertise of the society, but his job is usually made easier by the fact that the majority of societies are progressive and anxious to improve both their own technical and administrative performance, and the standard of their work. The architect of a housing society scheme can also call on a considerable amount of expertise and knowledge obtained from the pool of information obtained by the National Building Agency, and the Housing Corporation, in the execution of their functions. More and more architects are becoming specialists in housing society work and can therefore add their own reservoir of experience and feedback to this pool. These are all advantages that facilitate the work of the architect in the housing society sector and which are responsible for the increased quality and flexibility being introduced into this sector. For examples the work of the York University Design Unit at Heslington or that of Thorne and Barton at Coventry is interesting. In the former example, family houses have been linked with single storey flats in such a manner that they may be occupied separately, or taken as a flat closely related to a house (for an elderly relative) or combined completely with a house. In the latter example space standards between buildings have been relaxed by the Planning Officer to experiment with environmental conditions in low rise housing at higher densities, (see Figure 5.2.).

Working for a housing society is however not without its disadvantages. The most important being that due to problems of acquiring sites. Because of these problems only a small proportion of sites that are investigated are likely to be approved as schemes, with a resulting amount of abortive work for the architect. Until a scheme has been approved the housing society will in any case not have any funds for professional fees. The investigation of sites and the production of schemes will have to be carried out at great speed and be well presented. In addition, it is not always easy to work with committees, which are by nature voluntary, even if they do consist of friends. The architect in his client capacity can also expect to attend at least one committee meeting per month. To some extent the architect wanting

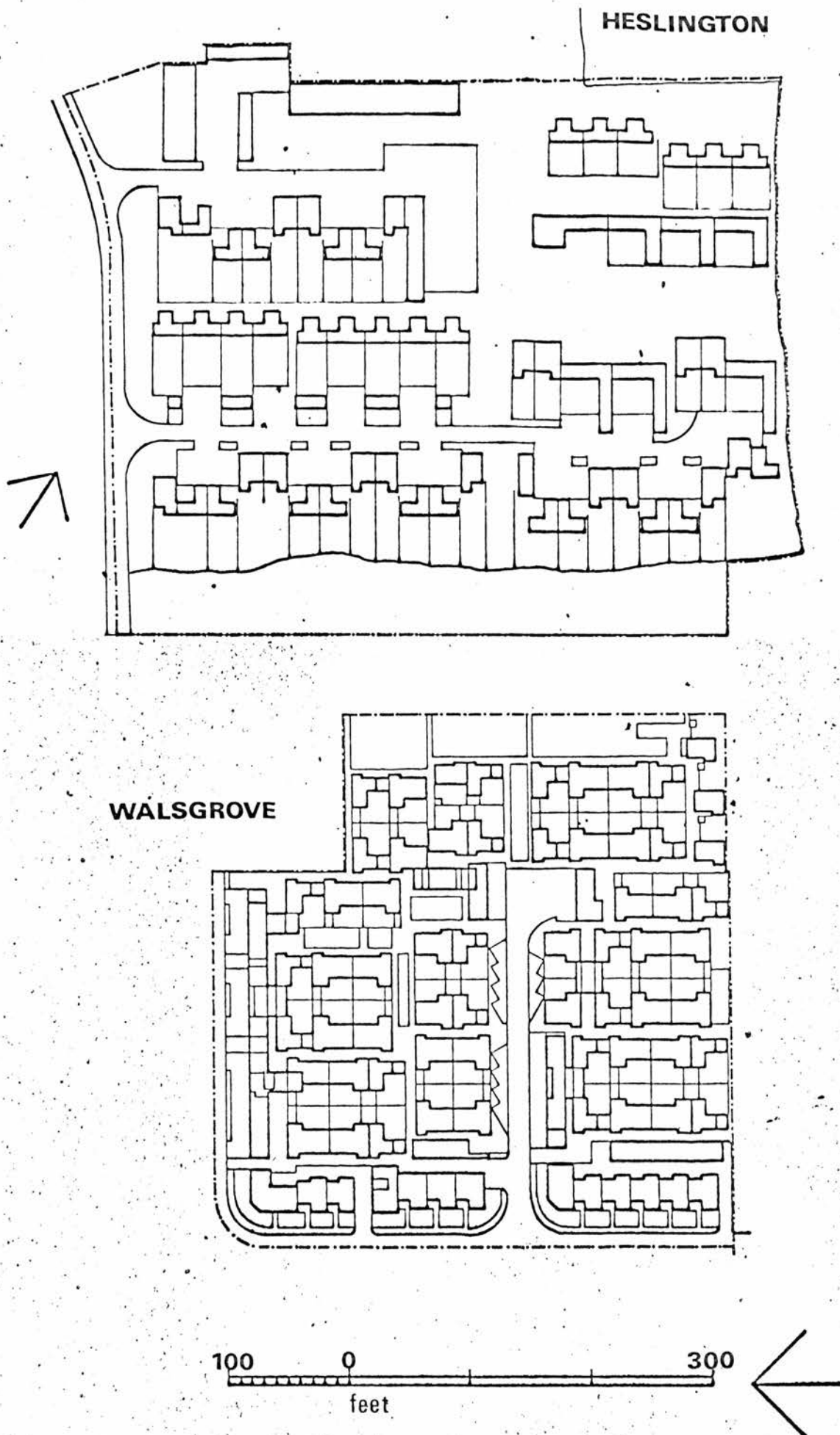


Figure 5.2 : Two Housing Society Schemes.

to become involved in housing society work is in a more advantageous position if he works for an existing society than becoming involved in the promotion of a new one.

5.7. THE FUTURE OF THE HOUSING SOCIETY MOVEMENT

Following the establishment of the Housing Corporation in 1964 the situation for the housing society movement in this country was greatly improved. The realisation that only through an effective central organisation could expansion take place in this field reflected the experience of other countries. If the movement is to progress any further, however, there are still problems which need to be overcome. The principal problem remains finance which has been aggravated by the economic strife of the last four years. The present two tier system of Exchequer and building society finance presents many practical problems, and if it is to be retained needs expanding and improving. The building societies have never been enthusiastic supporters of housing societies and their involvement is mainly due to Government pressure. At the moment four building societies are responsible for lending seven-eighth of the total building society investment¹¹² and the restrictions they introduce are having an adverse effect on the development of schemes. Much time can be wasted by housing societies negotiating individually with building societies for resources. The amounts requested by the housing societies are much larger than the building societies are used to advancing and in trying to restrict their risk in any one project, they are undoubtedly responsible for restricting the size of schemes. Apart from this, to rely solely on one source of finance means that the availability of resources in this one source becomes the regulator of progress in the housing society field (as in the present instance).

These then are some of the problems and they suggest two possible independent or complimentary improvements. Firstly, the Housing Society movement would become more efficient if the Housing Corporation became the major financial organisation and was solely responsible for the distribution of available resources to the housing societies. Instead of housing societies negotiating independently with building societies, the building societies should be encouraged to earmark

an annual amount which could be transferred directly to the Housing Corporation. Examples of the effectiveness of a central organisation that has complete financial control can be seen in Denmark's Arbejderbo or Sweden's HSB.¹¹³ Secondly, the source of finance for the Housing Corporation could be profitably expanded to take in Trades Unions, Insurance Societies, Investment Trusts, etc., all of which have been successfully introduced into the housing society movement abroad. For example the Danish trades unions played a successful part in the founding of Arbejderbo and in West Germany¹¹⁴ have played an even more important part of the post war housing co-operative movement there. Access to a broader field of finance coupled with government resources and backing, could establish the Housing Corporation as a central mortgage institution, which would free the housing society movement from many of the restrictions which are inhibiting its progress to become Britain's third house producing sector.

Another facet of the housing society field which requires reconsideration is the form and development of the individual societies themselves. Although the Housing Corporation has changed the public image of housing societies to a more professional one, there still exists in some quarters, (particularly local authorities) the view that they are by their voluntary and part-time nature inefficient and although well meaning are not necessarily improving the overall housing situation. The societies have remained small for the reasons previously discussed and there is justification for examining alternatives based on existing organisations. In Scotland and Northern Ireland the existing housing trusts could be adopted as models which would bring all the advantages of bulk buying and system development to the housing society movement. The New Town Development Corporations would also appear to offer scope for experimentation both from an organisational aspect, and from the point of view of the current attitude towards expanding the private housing content of the new towns. The development of larger societies on any of these lines would be a way of meeting housing demand in a number of areas, without in any way detracting

from the need for the continuing operation of the many smaller societies. This would result in a reduction of the total number of societies, which has in any case been a source of criticism, and would in the long run lead to greater efficiency.

The ideas embodied in the housing society movement have been discussed with a specific reference to the problems of adding new housing to the existing stock. Many of these ideas could however be applied to existing housing, to its benefit. For instance application in the public sector would be one method of increasing user involvement and participation in the management of their houses. This particular aspect of the housing co-operative movement is fully discussed by Gilmour¹¹⁵ and favourable comparisons drawn with a policy adopted in Norway for just this purpose.

'What historical and cultural differences there are between Norway and Britain cannot influence the conclusion that some similar transfer in this country merits serious consideration. The economic case for such an experiment will vary according to local circumstances, the age of the estates, and other factors, and a detailed study of the financial implications for a number of selected estates might be undertaken as a first step.'

This transfer would appear to offer particular advantages to the smaller local authorities, many of whom have no separate housing departments. If the problem of ensuring that families with low incomes could obtain adequate housing was dealt with by a system of 'family housing allowances', then local authorities could concentrate on building houses which would ultimately be taken over by housing societies. Britain has a higher proportion of public housing than any Western country and any improvements that can be introduced in this sector, technical, social or economic, will have a very important effect. With both parties now advocating slightly different forms of selling council houses it is disappointing that no attention has been paid to the formation of housing societies for this purpose.

CHAPTER 6: AN EXAMINATION OF DESIGNERS IN DIFFERENT DESIGN SITUATIONS - A PILOT STUDY

The previous chapters have examined the organisations in the public and private housing sectors which collectively form the frame-work within which new housing is at present provided. The architect is involved in this provision at many levels, from the design of individual dwellings to the planning of whole new communities. The function and degree to which architects are involved varies considerably between these organisations. The organisations in all the housing sectors have evolved to meet quite different needs and this is reflected in the architect's brief in different ways; in particular in the different social backgrounds and styles of living of the consumer. The architect plays quite different roles in each of these sectors, largely responsible for forming the standard of post-war public housing, his involvement in private house-building has been negligible.

Architects as designers of housing are, therefore, involved in a variety of house producing organisations which display not only a wide range of administrative structures and procedural differences, but also a diverse range of attitudes and motives towards housing which are related to their functions and reasons for existence. For example, organisations which have been created by political intervention in an attempt to make more new housing available to more and more people could be described as being primarily socially motivated (e. g. local housing authorities), whilst others which have evolved out of consumer demand, and which have to exist in an open highly competitive market, could be described as being primarily economically motivated (e. g. builders).

Also if one examines private architectural practices, similar extreme characteristics exist within which it is possible to categorise the motives of firms. The practices themselves, both large and small, are motivated in many ways. Some can be clearly seen to be interested primarily in profit, others in prestige, whilst the majority will contain a balance of these.

Little is known about these motives except that they exist in varying degrees in all practices. One common, controlling factor does exist in the form of the Code of Conduct of the Architects Registration Council of the United Kingdom. Whilst anyone may design a building and anyone build one, since an Act of 1931 no one may call himself an architect who is not legally registered as such, and registration is limited to those who are suitably qualified. Whatever the practices motives and attitudes are, however, they will be influenced to varying degrees by the nature of the client from whom they receive commissions (individuals or committees, lay or professional, profit making or non-profit making, etc.) All practices can theoretically receive commissions from all nature of clients, but in housing many build reputations based upon an involvement with only one.

The predominating motives of some practices can be easily identified. For example, the R. Seifert and Partners practice displays a strong profit motivation, whilst the Stirling and Gowan practice is characterised by its aesthetic motivation. This is not to say that the Seifert practice is only economically motivated to the total exclusion of other objectives, but that this is the primary motive evident in its highly commercial approach to architecture. (1). Similarly, the same reasoning applies to the Stirling and Gowan practice except the dominating objectives of the practice can be closely associated with one of the partners, namely James Stirling.

These examples are those which can be detected from quite a superficial examination of the organisations; they are in fact broad generalisations. Many different objectives and motives are inherent in varying degrees in all the organisations involved in housing. It is not the purpose of this thesis to determine these, but simply to draw attention to the fact that they exist. The architect, as a designer of housing is, therefore, engaged within a field which contains quite a wide range of divergent motives, as well as different organisational and management structures. Similarly, architects will themselves display a range of divergent attitudes, objectives

(1) See, for example, the interview with Col. R. Seifert, the principal of this firm in Building News. 13th. Oct. 1969 p. 6.

and motives towards housing, each being conditioned by their own background, education and experience to interpret housing in their own particular way. An architect working within the housing field will, therefore, be faced with working within the guide lines of the attitudes and motives of the organisation within which he works, but he will in addition have his own personal objectives which he will introduce into any design problem with which he is presented.

Within the field of housing it is possible to identify a number of design situations which are formed by the relationship of the design organisation to the client body. These design situations are described in Figure 6.1. From this framework it can be seen that the architect working in private practice is likely to find himself over a period of time designing for a range of client bodies with quite different characteristics. Architects in other forms of employment will usually have a much more static relationship with an integral client body which is only likely to change by his changing employment.

Architects are involved to varying degrees in all the design organisations described in Figure 6.1, alongside a variety of people with other specific technical and administrative skills, civil servants, quantity surveyors, engineers, surveyors. Whilst all these organisations display different executive and management structure together with different motives and attitudes, they all appear to have one element in common, i. e. the use of an architect as head of the design activity, the job architect, the designer of housing. The architect, as a designer, occupies the focal point at which all the different factors, interests and controls that enter into the design of housing converge are processed, reconciled and synthesised into one final solution. The initial aim of this thesis was to evaluate the performance of designers within a range of different design organisations; to establish the degree of divergence which exists amongst designers in their attitudes to, and knowledge of, housing; and in addition to establish what are the differing objectives of designers and to produce a method of evaluating their performance in achieving these

DESIGN ORGANISATION

CLIENT ORGANISATION

1. Self-employed as a principal in private architectural practice.	Local housing authority, new town development corporation, statutory undertaking.
2. Employed as an assistant in private architectural practice.	Profit making company, non-profit making company, private individual.
3. Employed as an assistant in a public office:	
(a) local housing authority	
County Borough Councils	
Municipal Borough Councils	
Urban District Councils	
Rural District Councils	
Greater London Council	
London Boroughs	
(b) New Town Development Corporations	
(c) Statutory Undertaking	
(d) Central Government	
4. Employed as an assistant in a commercial office:	
(a) Developers/Builders	
(b) Contractors	(b) As for 1 and 2 above.
5. Employed as an assistant in an Independent Research and Development Office:	
(a) Universities	(a) As for 1 and 2 above.
(b) Central Government	(b) Local housing authority, new town development corporation, central government.

Figure 6.1 : The Main Design Situations

objectives, the underlying hypothesis being that the organisations in which designers work do influence the way they perform, and that designers working within different organisations would display divergent objectives, knowledge and attitudes towards housing design, which would be related to the general motives of their particular organisations.

6.1 THE PILOT STUDY : INITIAL INTERVIEWS

As a starting point, a pilot study was initiated with designers selected as being representative of the most critical design organisations. It was envisaged that through a series of interviews, information about the designers could be built up and their objectives and knowledge of housing assessed. In addition the pilot study explored the practical difficulties in organising interviews and tests with designers in order to become the basis for a more comprehensive test. It was thought that the performance of designers could ultimately be measured by means of a controlled experiment, this experiment taking the form of a design exercise, each subject producing a design for a housing layout using a standard brief, their methods of designing observed and the resultant schemes related and compared to known information, (i. e. both to quantifiable general criteria, such as cost, and to the designers personal objectives obtained from previous interviews).

Five groups of eight subjects were selected, each group containing designers operating in the same design situation. All the subjects were operating as job architects and were actively involved in the design of housing layouts. They were all registered architects and had received full time education at a British School of Architecture. Ages of the subjects ranged from 26 to 52 years. There were 36 ^{men} males and 4 ^{women} females. In the sample were 14 subjects who were products of the same year at the same School of Architecture. These were included to form a sixth group, to enable a comparison to be made with a group with a common educational background and close age range.

The design situations selected are those considered to be the most critical in the overall housing field. They are:

1. Private Practice

This category is still the largest single group of architects and contains a broad range of possible architect/client relationships. Designers were selected from two practices, both specialising in housing and having work in both public and private housing sectors. The practices were dissimilar in size, one having a total staff of seven and being close to the theoretical average size of practice of the last eleven years¹; whilst the other had more than 30 staff and fell into the largest and most productive group of RIBA practice sizes². All of the designers were salaried architects.

2. Local Housing Authorities

Architects concerned with housing in local government are employed in one category of over 1,400 housing authorities described in Chapter 2. Apart from containing organisations with a great variety of different administrative structures, staff sizes and housing programmes, this category is responsible for contributing the largest annual proportion of new houses in the public housing sector. Whilst within the authorities involved in the major housing programmes the organisational structure is similar, in the smaller authorities the organisation will vary considerably and responsibility for architectural work may be taken by an engineer or surveyor. The subjects were selected from two authorities, one a large County Borough with its own Chief Architect and a qualified staff of 28, the other a smaller Borough with 5 qualified architects employed in a department headed by a Borough Engineer, but with a significant housing programme.

3. New Town Development Corporations

The new towns are particularly important in the increasing proportion of new housing they contribute to the national housing programme. By

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1. Whilst the total number of practices has continued to rise, there has been relatively little change in the average size of practice of between 6 and 7 staff since 1960. Source RIBA Census 1968.
 2. Only 4 per cent of practices contain more than twenty five staff but these larger practices account for some 33 per cent of the profession's total fee income. Source NBPI Architects Costs and Fees 1968.

comparison to Local Housing Authorities the administrative structure and size of architectural departments of New Town Development Corporations are very similar. In addition, the departmental structure of these organisations and the range of expertise available within the one body offers opportunities for interdisciplinary design activity not to be found in other categories. Housing produced by this design situation is also more readily classified, as with few exceptions the density and building form of the majority of housing in all new towns is very similar. The subjects were all selected from three New Town Development Corporations containing 21, 19 and 26 qualified architectural staff respectively.

4. Central Government and Research and Development Group

Architects working in research and development activities are never likely to represent a large percentage of the profession as a whole. They are for the most part engaged in advisory capacities, involved in development and research work and not directly in the design and supervision of housing schemes. In certain instances prototype housing layouts are produced, usually with specific in-built theories to test. Certain sectors of central government do produce housing in a conventional manner, usually where the government is client, e.g. houses for the armed forces. Yet their function in establishing standards, both through publishing specific design guidance and advising public and private architects at scheme approvals stage, is crucial to the advance of knowledge in housing design. The aim of including this group is, therefore, to compare their knowledge and objectives to those of the designers they are setting standards for. All the subjects had been previously worked in housing design and were all engaged on research and development projects related to housing layout standards. Four of the subjects are from Central Government, the remaining four from two different University research groups.

5. Building Contractors

In the employ of building contractors, architects are perhaps in greatest contrast to their professional status, background and education. The high rate of bankruptcy of building firms is well known, their survival depending very much on the profits they can make. The architect is

prevented by his 'code' from being ~~represented~~ on the board of directors of a building firm and will generally be directed by and responsible to a sales or marketing director. In this situation more than any other, one would expect the architect to meet the problems of designing for profit versus the professional ideals of maintaining a responsibility to the community. Containing a wide range of sizes of organisation (see Figure 4.4), there is little known about the distribution of employment of architects in this category. The subjects chosen as representative of this sector are selected from three firms. One, a large national organisation with an architectural department of 11 qualified staff, the other two being smaller regional organisations with 3 and 5 qualified staff respectively. The architects in the two smaller firms were responsible to one of the firm's directors¹ who was in charge of their section. In the case of the largest firm the architects were immediately responsible to a chief architect who was in turn responsible to a director.

These five groups of subjects represent a diverse range of organisations, each differing in important aspects from the others and yet all making valuable individual contributions to the supply of new housing. Through the following investigation it was hoped to establish whether the objectives, knowledge and attitudes of the designer would in any way correlate to the design organisations within which they were working; to establish whether architects in the public service were still intent upon improving the conditions of the 'working classes'; whether architects in the employ of contractors were primarily concerned with economic aspects of housing. Is the consistent character of new town housing related to the ideals of the designer? Is the state of knowledge of architects engaged in research and development in advance of other groups? Is there an understanding amongst designers of all forms of housing produced, or is the understanding confined to that of their own particular organisation?

1. One of whom had received a formal architectural education, but had resigned from the RIBA in order to take up the directorship.

The Interview Procedure

The procedure adopted was as follows. Each subject was interviewed separately at his place of work, the interviews lasting from about 40 to 70 minutes. The interview was in two parts. In the first place each subject was given two separate sets of six house plans. The first set consisted of terrace houses with cross walls at varying widths, but all with an overall area of between 920 and 970 square feet. The second set consisted of single storey houses of a variety of forms and areas. Both sets contained examples of public and private housebuilding. The houses were all selected from recent official and magazine articles as being good examples of their type. The house plans are contained in Appendix 2. The origins of the house plans were not disclosed to the subject. Each subject was then asked to rank the plans in order of quality from one to six. Quality was not defined but there was no hesitancy shown by any of the subjects in using it as a criteria for ranking. After recording the ranking each layout was discussed in turn and the subject asked to identify the layout if possible and to expand upon their own definition of quality. Through the ensuing discussions it became obvious that the central definition of quality being used was that of the degree to which the plan facilitated family use. None of the sample interpreted quality in economic terms (.e.g. distance between cross walls) or aesthetic terms (e.g. the way the plans would elevate).

The results of this exercise are shown in Figure 6.2 for both sets of house plans. The system for marking was as follows: every plan was awarded a number of points depending upon where each subject ranked it, 6 points for a first, 5 for a second, etc., down to 1 point for the lowest ranked plan. This exercise produced a remarkably consistent degree of correlation between the rankings for both sets of plans, there being slightly higher agreement on the first set. Generally, there was complete agreement about which were considered the worst and the best plans. Of the 40 subjects, only 3 (all in the Research and Development Group) could identify more than 4 of the house plans, and 21 could not identify any. Apart from

DESIGN SITUATIONS

Code No	House Type Origin	Average for all Groups	Private Practice	Local Authority	New Towns	Building Contractor	Research Development
A4	Hatfield	1(45)	1(46)	1(44)	1(46)	1(44)	1(46)
A2	West Ham	2(37)	2(38)	2(39)	3(34)	3(35)	2(38)
A1	MHC Mark 1	3(36)	3(34)	3(32)	2(38)	2(41)	3(36)
A5	Guildway	4(19)	4(21)	4(21)	4(20)	5(17)	5(17)
A3	Boston Manor	5(18)	5(18)	6(14)	5(19)	4(18)	4(19)
A6	Anglia	6(13)	6(11)	5(18)	6(11)	6(13)	6(12)
B6	Hatfield	1(47)	1(44)	1(46)	1(45)	1(46)	1(44)
B3	Sawston	2(38)	2(41)	2(39)	2(36)	2(38)	3(35)
B4	Sheffield	3(33)	3(35)	4(18)	2(37)	3(36)	2(41)
B5	Adaptable House	4(23)	4(18)	3(35)	4(19)	4(22)	4(21)
B2	Westgate	5(14)	6(13)	5(16)	5(18)	5(14)	6(17)
B1	Aldershot	6(13)	5(17)	6(14)	6(13)	6(12)	5(10)

Figure 6.2 Summary of ranking of house plans categorised by design situation in the first test. The first number in the column is the mean position each plan was ranked by the group. The number in brackets is the number of points scored.

the subjects in the Research and Development Group, a general ignorance of recently completed and well publicised (by the architectural press) housing estates was displayed in these interviews.

The second part of the initial interview is concerned with establishing the personal objectives of architects, i. e. objectives introduced by the designer into the design problem, and which were not always implicitly stated within the architect's brief. To this end each subject was asked to write down what he or she considered to be their objectives in the field of housing design. The replies to this question varied between subjects, from general statements concerning the quality of the built environment to more detailed lists of up to 10 objectives. Figure 6.3 summarises this information. To simplify this list objectives have been grouped together under simple definitions. The percentages stated are based on the number of subjects who stated that objective. A total number of 175 objectives were stated by the 40 subjects.

With an open ended invitation to state objectives it is difficult to see how to avoid the general response, such as 'to provide a good environment', which inevitably hides a range of more specific objectives. The subjects who stated this were all prompted to expand upon it but all retained it in their list. It is significant though that of the replies made which have been grouped under this heading, the emphasis was very much on the social aspects of housing. Of the 21 objectives, 5 were concerned with the dwelling itself, 4 were concerned with the visual appearance of the layout, 1 with the economic aspects of building, and the remainder with various other aspects of the design of the layout. There did not appear to be any particular way that the groups of subjects in each design situation differed from each other. For example, the comments related to Parker Morris space standards were as readily expressed in the private practice and building contractor situations, as in the others. Similarly, comments about the economy of the building operation were not restricted to any one particular group. At the end of the initial interviews, therefore, there are two distinct conclusions that can be drawn. Firstly, there is little difference in the way the house plans are ranked between the groups in different design situations; in fact there was a very high correlation of these results.

% OBJECTIVES

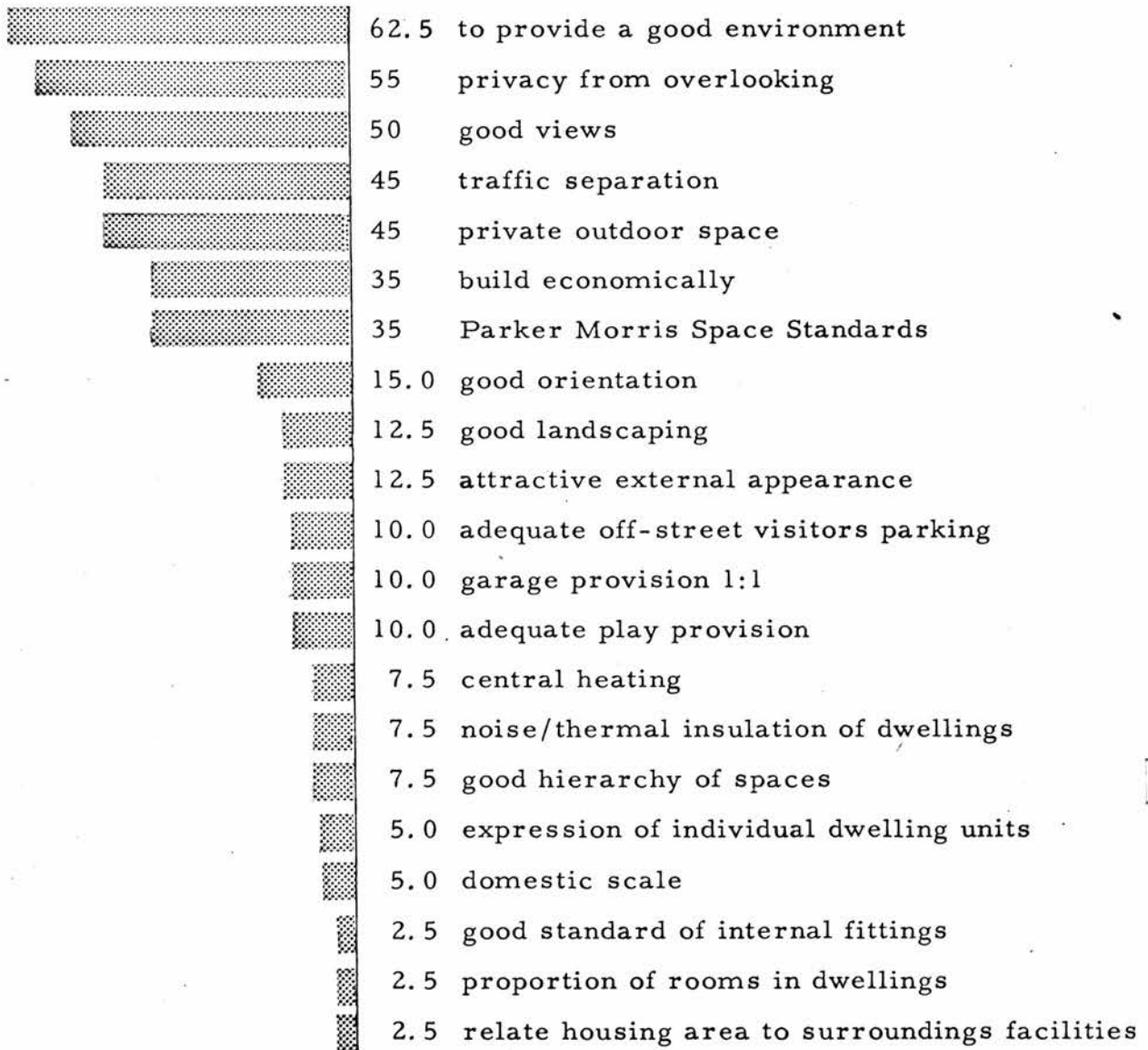


Figure 6.3 : Personal objectives of the designers

Secondly, of the personal objectives stated by designers, seven appeared to be of particular significance in that they were mentioned the most number of times. There is no obvious correlation between the groups of subjects representing design situations and the personal objectives stated.

A second series of interviews was held some 6-10 weeks later in order to verify the findings of the initial interviews and to expand upon the architects' personal objectives.

6.2 THE SECOND INTERVIEWS

The second interviews followed the same pattern as the first but were necessarily longer, taking from 60 to 100 minutes each. The first part of the interview was designed to verify the results of the earlier tests on house layouts. Each subject was again presented with the two sets of house layouts and a draft copy of the Ministry of Housing and Local Government check list¹. They were asked to look at the check list and then use it to assess the plans and rank them again. They were told that this exercise was intended to check the validity of the Ministry check list. This it was felt would draw attention away from the repetitive nature of the exercise, and in the event of any of the subjects remembering their previous rankings, would give them a reason for changing them. Apart from minor variations from the first interviews, the results were again very consistent, (see Figure 6.4 for a summary of the ranking). It was also intended that the second interview should further explore the personal objectives that architects in the various design situations held, as well as to repeat the initial tests on house layouts. From the objectives stated by subjects in the first interviews, a list of 7 considered to be the most important by the majority of subjects was produced. This list was then presented to each subject, one objective on each of seven cards, the subject being asked to rank the cards in order of his own priority. The results of this exercise are shown in Figure 6.5 both for the total number of subjects and for each design situation in turn. The system for marking was as follows: each objective was awarded points according to where each subject placed it, 7 points for a first, 6 points for a second, etc. down to one point for seventh place.

1. This was taken from a draft copy of House Planning. A Guide to user needs with a check list. MOHLG, HMSO 1968.

DESIGN SITUATIONS

Code No	House Type Origin	Average for all Groups	Private Practice	Local Authority	New Towns	Building Contractor	Research and Development
A4	Hatfield	1(46)	1(46)	1(44)	1(47)	1(47)	1(47)
A2	West Ham	2(35)	2(38)	2(41)	3(33)	4(20)	2(38)
A1	MHC Mark 1	3(34)	3(34)	4(21)	2(38)	2(40)	2(36)
A5	Guildway	4(22)	4(18)	3(35)	4(23)	5(16)	5(17)
A3	Boston Manor	5(18)	5(17)	6(10)	5(14)	3(31)	4(19)
A6	Anglia	6(13)	6(13)	5(17)	6(13)	6(14)	6(12)
B6	Hatfield	1(45)	1(44)	1(44)	1(47)	1(48)	1(44)
B3	Sawston	2(38)	2(41)	2(39)	3(33)	2(38)	3(35)
B4	Sheffield	3(37)	3(35)	3(35)	2(38)	3(33)	2(41)
B5	Adaptable House	4(21)	4(18)	4(18)	4(23)	4(25)	4(21)
B2	Westgate	5(15)	5(17)	5(16)	6(13)	5(16)	5(17)
B1	Aldershot	6(12)	6(13)	6(14)	5(14)	6(8)	6(10)

Figure 6.4 Summary of ranking of house plans categorised by design situation in the Second Test. The first number in the column is the mean position each plan was ranked by the group. The number in brackets is the number of points scored.

OBJECTIVES	DESIGN SITUATION					RESEARCH AND DEVELOPMENT
	AVERAGE FOR ALL GROUPS	PRIVATE PRACTICE	LOCAL AUTHORITY	NEW TOWNS	BUILDING CONTRACTOR	
To provide a good environment	1(55)	1(54)	1(56)	1(54)	1(53)	1(56)
privacy from overlooking	2(39)	3(36)	2(42)	3(37)	4(34)	2(44)
good views	3(34)	2(38)	3(39)	4(34)	5(24)	3(35)
traffic separation	4(31)	4(32)	4(29)	2(46)	6(22)	= 4(29)
private outdoor space	5(26)	5(26)	5(24)	5(25)	2(41)	5(16)
build economically	6(24)	= 6(19)	6(21)	= 6(14)	3(35)	= 4(29)
Parker Morris Space Standards	7(15)	= 6(19)	7(13)	= 6(14)	7(15)	6(15)

Figure 6.5 : Summary of ranking of personal objectives categorised by design situation. The first number is the position each objective was ranked, the number in brackets the number of points scored.

The results show that although the overall ranking does not differ from the initial tests, the individual weighting of each objective does. This can be explained by the different marking system used and the fact that each subject had to rank all the 7 objectives. The ranking of objectives within the separate design situations does slightly differ between groups of subjects, although there was general agreement on the first and last rankings. The ranking of objectives in the local authority group corresponds closely to the final ranking in the initial interviews. The new town group, with the exception of "traffic separation", which was ranked higher than in any other group, closely followed the same pattern. The private practice group rankings are similar except "privacy from overlooking" and "good views" are reversed. To "build economically" was ranked higher by the Research and Development Group, but otherwise this too followed the same pattern. The only major deviation from the norm occurs in the Building Contractor group. Here the first and last rankings remain the same but "private outdoor space" and "build economically" are ranked second and third above "privacy from overlooking", "good views" and "traffic separation".

Because of the consistency of the results of the initial interviews it was decided to expand upon the background and aspirations of all the subjects during this second interview. All the subjects were therefore finally asked details of their career to date and also their immediate plans that might effect a change in employment. What appeared to be of fundamental importance to the original hypothesis came from this investigation. Of the 40 subjects (who had an average working life since qualification of 10 years), it was discovered that 28 had already worked in private practice, local authorities and new town design situations, whilst 18 of these had, in addition worked for a building contractor. In addition the immediate aspirations of all but 16 of the subjects would have taken them outside their present design category in less than two years.¹ The sample would have been representative in quite different proportion of design situations

1. Changes in employment of the 40 subjects were checked in December 1970, some 28 months after the interviews were completed. Of the 21 subjects who had during this time changed employment 17 had moved to different design situations.

over fairly short periods of time. If these subjects can be considered representative of designers as a whole, the conclusion can be drawn that the designer moves readily from one design situation to another, in general motivated by job improvement, and ultimately to operate in an executive capacity. The older subjects in the interviews stated that they preferred to work as job architects "at the drawing board" and this had been a consideration when they had sought promotion.

From these interviews, therefore, there is general agreement amongst architects operating as designers about what constitutes quality in house planning and that although there is a difference in their objectives which can be accounted for by the category of their current design situation, it appears insignificant. All the active designers displayed an ignorance of current housing estates and published material.

The situation, therefore, is that although the designer occupies such a critical focal point in the housing process, there is no particular type of architect likely to occupy this role in the different design organisations. To consider the man as representative of the organisation does not, therefore, appear valid. Some differences emerged between designers that could be related to design organisations, but compared to the movement of designers between organisations, these do not justify pursuing this line of enquiry further. The designer moves freely between organisations in different design situations, influenced by improving his career prospects, and in the majority of cases to ultimately operate in an executive rather than a design capacity. Indeed it may well be that an investigation at this higher management level would discover a relationship between the attitudes and motives of architects operating in an executive capacity and the design organisations within which they work.

From the results of this pilot study it becomes evident that the performance of the designer cannot be isolated from his interaction with the constraints of his design organisation, brief, site conditions, etc. and the only possible way of measuring this total performance is through a

comprehensive evaluation of the end product. It was decided to concentrate in the latter part of this study on developing a method of evaluating the overall quality of housing layouts, which if related to a systematic approach to appraisal and measurement could become a central information source for architects.

CHAPTER 7 : THE ARCHITECT AND THE DESIGN OF HOUSING

As a result of the tests carried out in the pilot study, and described in the previous chapter, the emphasis of the latter part of the thesis was modified. The original intention of relating a designer's attitudes and knowledge to categories of design organisation is invalidated by the high rate of movement of designers between organisations in different design sectors. The aim of measuring the performance of designers in a controlled situation was therefore modified, and the main emphasis of the study became to develop techniques of examining the performance of the designer through an evaluation of completed housing schemes. In developing these techniques ways of improving the performance of the designer, and therefore the quality of housing, are sought.

In considering performance two separate but closely related aspects can be identified:

- a) One aspect is concerned with 'productivity' and producing more end products in less time. This aspect is evident in the desire to integrate technological developments like computers in the design process, as well as the reorganisation of this process along more efficient management lines e. g. the R. I. B. A. 'Plan of Work'¹¹⁶
- b) The other aspect is concerned with the quality of the end product, and ways of improving this. This line of thinking is typified by Alexanders¹¹⁷ argument that designers should try to understand the design process analytically so that the forms they produce may be better fitted to their contexts.

The concern of this thesis is primarily with the latter aspect, and it is postulated that the performance of the architect in housing design can be assessed by the ultimate success, or quality of the schemes he designs. The quality of housing is indicated by the degree to which it satisfies human requirements, and its assessment provides a measure of the degree to which these requirements have been satisfied. To assess this quality requires the establishment of a range of descriptive procedures that enable the various characteristics of the completed

housing area to be evaluated. These characteristics can be either measured when they are finite objects, or appraised when a subjective assessment alone can be made.

7.1. THE APPRAISAL AND MEASUREMENT OF HOUSING

The measurement and appraisal of housing quality is not an entirely new concept and methods have been developed in many parts of the world. In 1928 Klein¹¹⁸ put forward the suggestion of a system of evaluating housing using mainly mathematical and graphical analyses. There are many later examples in both France and Germany using both methods of analysis. In Finland a points method has been developed which is based on the actual market value of the housing. In Denmark a system has been developed in the form of a check list where the desirable qualities have been defined in advance. In Norway two methods have been developed; one has tried using the opinion of experts (i. e. architects with good reputations for housing) to assess the quality (termed 'usefulness' in this case) of a variety of building forms. The correlation and agreement of the experts was not however consistent and a further development by the Norwegian Building Research Station using a variety of check lists appears to be more promising.¹¹⁹

In the United States a system¹²⁰ was developed immediately after the last war by the Public Health Association using a points method. All of these methods are however mainly concerned with sub-standard existing housing and in particular with assessing health and hygiene standards. As one would expect they vary greatly in their format, for while basic human and health requirements are similar everywhere, the conditions and standards needed to meet them vary according to climate, custom, economics, state of development, age of the area and many other factors. In 1967 the National Swedish Institute for Building Research¹²¹ carried out a survey of seventeen countries to establish factors that were taken into account in measuring the quality of housing. Figure 7.1 summarises the factors that the responding countries considered important and the actual measurements they used to quantify these factors.

Section Country replies Units mentioned	Characteristics measured	Frequent units of measurement	Number
<i>Units referring to dwelling characteristics</i>			
2.1.01. Space standards	Dwelling area	Useful floor space ^a	9
Country replies: 15		Living floor space ^a	7
Units mentioned: 20	Accommodation in dwelling	No. of habitable rooms per dwelling	7
	Occupancy of dwelling	Living floor space per occupant	5
		No. of occupant per habitable room	5
		No. of occupants per room ^a	6
2.1.02. Availability of water	Water consumption	Volume per person per unit of time	12
Country replies: 13			
Units mentioned: 6			
2.1.03. Refuse removal	Quantity of refuse	Volume per person per unit of time	5
Country replies: 10	Refuse disposal	Volume of refuse bin	7
Units mentioned: 13		No. of collections per week	7
2.1.04. Sewage	Quantity of waste water	Volume per person per unit of time	
Country replies: 10		(see 2.1.02. "Water consumption")	
Units mentioned: 3			
2.1.05. Equipment for personal hygiene	Bath and lavatory	Floor space of bath and lavatory	7
Country replies: 12		Dimensions of bath and lavatory	7
Units mentioned: 4			
2.1.06. Laundry facilities			
Country replies: 9			
Units mentioned: 6			
2.1.07. Food preparation	Kitchen space	Floor space of kitchen	12
Country replies: 12		Width of kitchen	7
Units mentioned: 7	Kitchen equipment	Dimensions of built-in tables	5
		Dimensions of cupboards	5
	Food-storage space	Area of food-storage cupboard	5
2.1.08. Storage space	Storage space within and outside dwelling	Storage space per occupant	7
Country replies: 12		Storage space outside dwelling per dwelling unit	7
Units mentioned: 6		Dimensions of storage space	5
2.1.09. Living climate	Air space	Room height	11
Country replies: 13		Volume of room	5
Units mentioned: 16	Ventilation	No. of air changes per time unit	9
	Heating conditions	Room temperature	11
		Heating season (no. of days)	5
	Heat insulation	Resistance to heat conductivity	5
		Thermal conductivity	9
2.1.10. Daylight	Light conditions	Ratio of window area to floor area	13
Country replies: 15		Width of unobstructed space before window	6
Units mentioned: 11			
2.1.11. Sunshine	Sunshine conditions	Width of free space between buildings	8
Country replies: 14		Height of building related to width of free space	6
Units mentioned: 13		Rooms enjoying sunshine related to total number of rooms	5
		No. of sunlight hours enjoyed by a room or a dwelling	7
		Incidence angles at windows	6
2.1.12. Noise control	Noise level in dwellings	Noise level in db	5
Country replies: 11			
Units mentioned: 2			
2.1.13. Layout	Area of habitable room	Floor space of room	14
Country replies: 14			
Units mentioned: 12	Room dimensions	Width of room	9
		Ratio of width to depth	5
		Width of passage	5

Figure 7.1 : Important Factors in measuring the Quality of Housing.
Units of measurement mentioned by 5 countries or more are listed above. Number refers to the number of countries mentioning the unit in question. Source : Quality of Dwellings and Housing Areas. N.S.I. B.R.

In Great Britain the quality of existing housing stock is assessed, for purposes of renewal action, according to statutory criteria defining unfitness for human habitation. Before 1954 there was no statutory definition of unfitness of houses, but for slum clearance purposes, determination of fitness for human habitation was based on

"regard . . . to the extent, if any, to which, by reason of disrepair or sanitary defects, the house falls short of the provisions of any of the byelaws in operation in the district dealing with the construction and drainage of new buildings and the laying out of new streets. "

The Housing Act of 1957, however set out a list of factors that have to be taken into account when determining the quality of housing:

1. Repair
2. Stability
3. Freedom from damp
4. Natural lighting
5. Ventilation
6. Water supply
7. Drainage and sanitary conveniences
8. Facilities for storage, preparation of food and disposal of waste water.

That these factors have been singled out in Britain is indicative of both its particular housing problems and its state of social and economic development.

It is generally the case that these factors, along with age, ~~that~~ are considered the most important factors involved in classifying housing stock. Sample surveys have been conducted in Britain on a national and regional basis, estimating the quality of the housing stock, with regard to just these factors.¹²² Official surveys to date have tended to concentrate on factors concerned specifically with the physical quality of housing. New housing in Britain is by comparison with many countries at a very sophisticated level. Control is already exercised through planning and byelaw approval schemes before new housing can be built. These controls are however

still concentrated on maintaining physical and economic (in terms of value for money) standards. Concern is increasingly being expressed from both the public and the profession about the quality of both new private and public housing. In the public sector the Ministry of housing and local government recognising this have embarked upon a long term reassessment of housing layouts. In stating their aims of this work they emphasise that in their view the design of the layout

'..... is far more complex than
the design of the individual dwelling.' ¹²³

In outlining their approach attention is drawn to changing social patterns,

'New patterns of living are emerging which require a radical reconsideration of the priorities for environmental design. Increasing car ownership, greater awareness of the need to provide for children's play, more leisure time to spend in and around the home, and the demand generally for better conditions, are some of the new factors which have to be recognised in the design of the housing environment. In addition, new forms of housing are being evolved and new problems such as increased traffic noise are arising which are posing questions which have not been faced before. In our view, further major advances in housing design depend largely upon increasing our understanding of requirements for the housing environment and upon clarifying the respective contributions which planning, design and management can make.'

Some studies have been carried out to date on some of these more elusive aspects of housing quality both by the Ministry of housing and local government ¹²⁴ and by independent organisations. ¹²⁵ In the private sector too there is evidence that more builders are following the enlightened attitudes of Span and Wates ¹²⁶ and paying more attention to housing layout. The National House Builders Registration Council have extended their interest from the physical quality of the house itself to the layout. They have for example established a foundation for research into housing and in

particular a project into problems of traffic separated housing areas has been initiated. There is an added danger that not only are we not carrying out enough investigations into these aspects of layout, but that what is being done is obsolete before it can be applied. Studies of user satisfaction have to be carried out when occupants have settled in the houses, social surveys are lengthy in nature and their findings are complex and not in a form readily usable or helpful to a designer.

What is needed is a method whereby our efforts can be directed, as in the form of a controlled experiment so that all the work that is done in housing in the country is regarded as a subject for study. Rapid observations on the physical, economic, social and technical aspects of housing in all sectors needs to be made and the results made readily and rapidly accessible to designers. If an active research body independent, and with access to expertise in all the fields concerned, could be established and directed along lines that would produce short term as well as long term results, a tremendous amount could be achieved very quickly.

7. 2. THE COMPLEXITY OF HOUSING DESIGN

To the architect the problem of housing design is becoming increasingly more complex. The traditional relationship where one man was his own client, architect and builder is a long way removed from the contemporary situation of large housing schemes being produced by multi-disciplinary teams. In a recent Ministry of housing and local government publication¹²⁷ sixty-four main groups of design factors were referred to, and thirty-three organisations contributing in some way to the brief identified. (See Figure 7.2.) Discussing this complexity Cox¹²⁸ identified four major causes of it.

1. Scale and Magnitude. The increasing volume and scale of work with which the architect has to acquaint himself.
2. The pace of social and economic change which widens the scope of architectural work, and involves him in

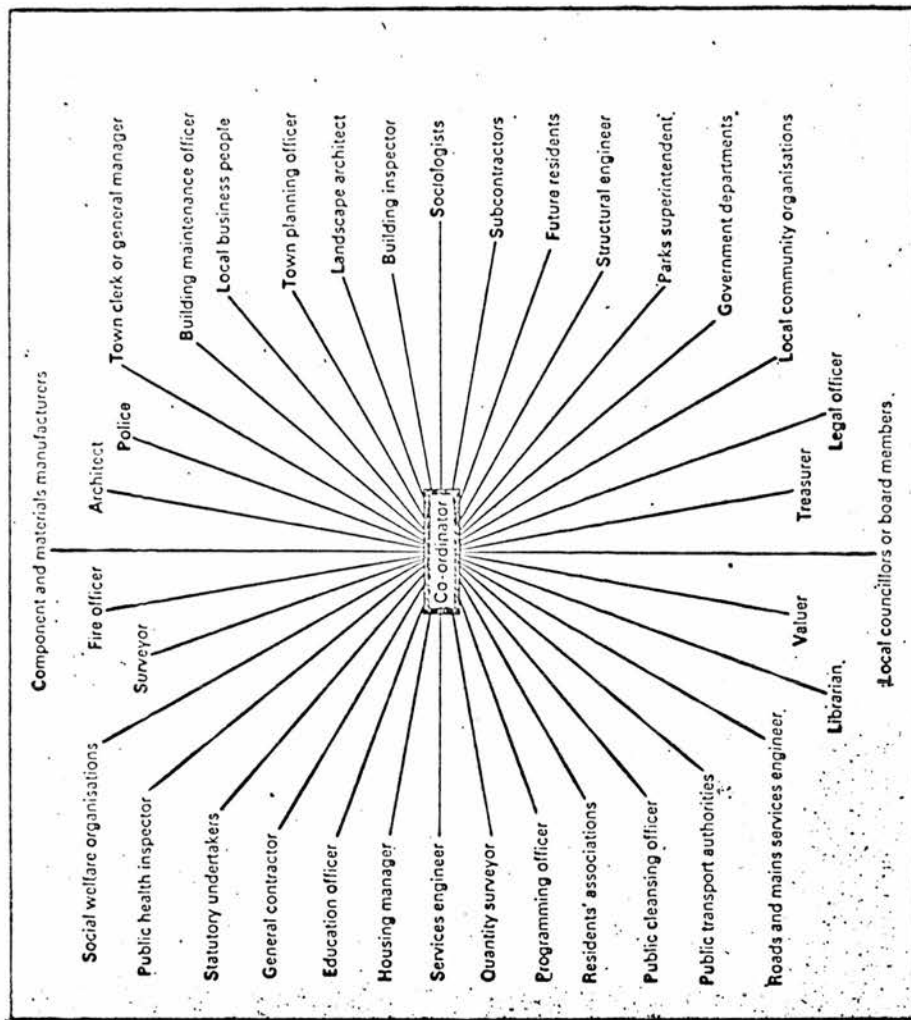
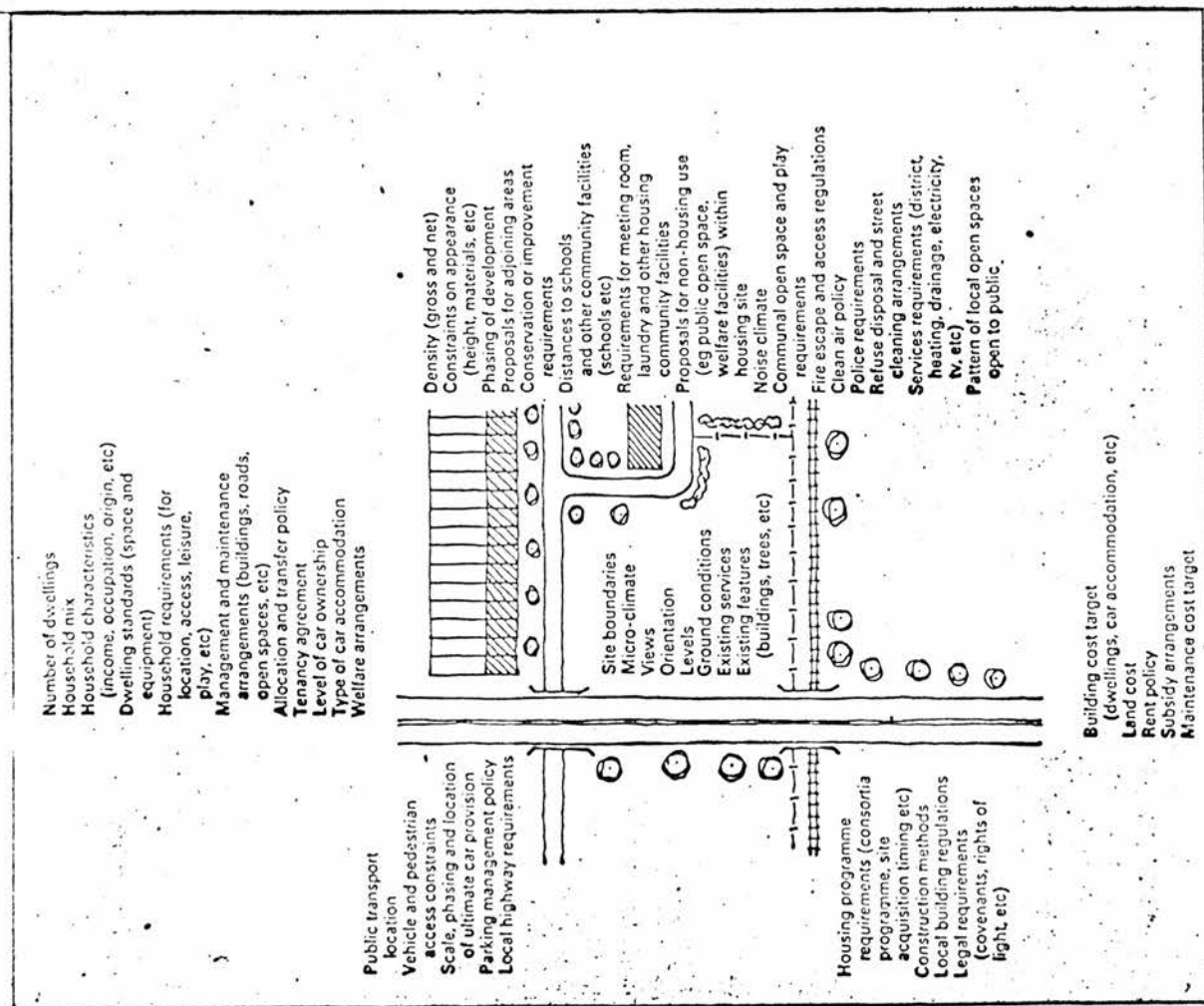


Figure 7.2 : The Complexity of Housing Design.
Source : M.H.L.G.

identifying objectives as well as postulating solutions to them.

3. Technological change. The assimilations by the profession of new building materials and techniques and new brainwork techniques.
4. Client fission. The splitting up of individual clients into representative groups and lack of identification between user and client.

Alexander¹²⁹ states that more and more design problems are reaching insoluble levels of complexity. Even superficially simple items have backgrounds of needs and activities that are too complex for a designer to grasp intuitively. In addition, to match this problem complexity, there is a growing body of information and specialised expertise. Surveys have shown that this information is scattered, hard to find, inconsistent and unorganised.¹³⁰

One way in which the designers concern with his ability to deal with these problems has manifested itself, in recent years, is the growing interest in design methodology. Much has been written about design methods and in particular about making the design process a more open, systematic and structured activity.¹³¹ Whilst the study of design method is relatively recent (compared to, say, scientific method) a number of concepts have been established upon which there is common agreement. It is not the intention of this thesis to examine the design processes in detail; but it is the intention to show that measurement and appraisal is central to the design process itself. To this end it is therefore necessary to establish some fundamental concepts.

7. 3. THE DESIGN ACTIVITY IN HOUSING

Whilst each design project has an individual history which is peculiarly its own, all design projects exhibit a pattern that is common to all design activity. Markus¹³² refers to this pattern as a vertical dimension of design and defines it as the design morphology. The morphology is the chronological or sequential structure of design projects around which

the project can be planned, organised and evolved. The Royal Institute of British Architects 'Plan of Work' is in fact a building design morphology comprising the following stages -

- | | |
|---------------------------|------------------------|
| 1. Inception | 7. Bills of Quantities |
| 2. Feasibility | 8. Tender Action |
| 3. Outline proposals | 9. Project Planning |
| 4. Scheme design | 10. Operation on site |
| 5. Detail design | 11. Completion |
| 6. Production information | 12. Feedback |

Stages 2 - 5 are concerned with 'design' as generally accepted and subsequent stages are concerned with implementing the design as accurately (6), cheaply (7 & 8) and quickly (9, 10 & 11) as possible. The characteristic of a morphology is that the stages are sequential and not iterative; return from a later stage to an earlier stage is recognised as failure in the management of design activity.

The second activity occurring in design that can be identified as the design process. This 'horizontal' dimension is iterative and cyclic in character and comprises four steps - Analysis, Synthesis, Appraisal and Decision. This second structure can in principle be applied to each phase of the morphology.

- Analysis - clarification of goals; identification of problems;
nature of difficulties; exploring relationships;
producing order from random data.
- Synthesis - creation of part solutions; combination of past solutions.
- Appraisal - evaluation; application of checks and tests; application of criteria, constraints and limits; consistency testing.
- Decision - selection of 'best' solution from a set; advancement to the next morphological stage.

Together the design morphology and the design process form the framework of design activity.

7. 4. APPRAISAL AND MEASUREMENT IN DESIGN ACTIVITY

Within this framework appraisal takes place, as an evaluative activity, many times and in different forms. Within the Royal Institute of British Architects 'Plan of Work' the activity is specifically defined in Phase 12 'Feedback'. This phase is intended to yield data about the management of the project, the construction of the building and its performance in use. By the time this phase is reached it is too late to alter the design and therefore the data yielded can only be of use in solving the next design problem. This data then becomes an input for earlier phases in the design morphology (phases 2 - 5 in the 'Plan of Work').

In carrying out phase 12 the main benefit is to the designer, in adding to his cumulative experience. Although within the present fee scale it is the client who will be paying for this activity its only benefit to him will be if he has a large programme of a repetitive nature. Where programmes of appraisal have been established it has usually been where the client is in this category and has something to gain.¹ In addition the designer in many cases still persists in the view that each problem is unique and avoids any preconceptions about solutions.² In the field of housing however the observed repetition and standardisation seems likely to increase. Whilst the large client and design organisations will still be financially able to participate for themselves in this activity, the smaller practices will have to rely on the existing channels of information. Architectural magazines have to some extent become involved with publishing more systematic appraisals of buildings in use but their activities are still fragmented and insufficient. The Architects Journal, a magazine with the highest circulation amongst architects,

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1. See for example work carried out by the G. L. C., Cumbernauld Development Corporation, Wates Ltd.
 2. For example, all the designers interviewed in the subsequent case studies expressed the view that in their initial approach they had decided the problem was unique.

published 205 Cost Analysis of Buildings in use, between the years 1965 - 1969. Of these, 35 dealt with residential buildings i. e. less than 18 per cent, and an average of 9 per annum. The building cost aspect of these schemes was compared on a standard format, but other aspects were randomly dealt with. The most significant move to date in the direction of establishing a comprehensive appraisal system is that described by Crofts¹³³ in his proposal for a National Housing Intelligence Bank. It is for use in this project that the appraisal and measurement form outlines in the next chapter was specifically developed.

Appraisals are necessary to provide more information for designers in the early stages of design activity (phases 2 - 5 of the 'Plan of Work'). In deciding what information is required and its optimum form it is necessary to consider the design process as it operates in these phases. This is the decision making process for solving problems of design and is iterative and cyclic in nature. The breakdown of this activity has previously been referred to as analysis, synthesis, appraisal and decision. There are a number of accepted deviations but all agree that the initial stages deal with information and its assimilation and that a continuing activity of evaluation takes place whenever the designer pauses to take account of what he has done.¹ The design process as described by the 'Plan of Work' is shown in Figure 7.3. The designer is therefore continually evaluating part solutions to his earlier established objectives; objectives which were established partly by the brief and its external constraints and partly by his personal objectives. He is in doing this producing 'models' embodying characteristics which can be measured and/or appraised. In the manipulation of these characteristics compromises are often produced which results in the modification of earlier objectives. In designing and building a group of houses many 'models' are constructed which culminate in the completed building. These vary in complexity from symbolic plan diagrams, final design drawings, three dimensional models

1. See for example Asimow's six stage breakdown in engineering design and Levins more detailed urban design breakdown.¹³⁴

Stage	Purpose of work and Decisions to be reached	Tasks to be done	People directly involved	Usual Terminology
A. Inception	To prepare general outline of requirements and plan future action.	Set up client organisation for briefing. Consider requirements, appoint architect.	All client interests, architect.	Briefing
B. Feasibility	To provide the client with an appraisal and recommendation in order that he may determine the form in which the project is to proceed, ensuring that it is feasible, functionally, technically and financially.	Carry out studies of user requirements, site conditions, planning, design, and cost, etc., as necessary to reach decisions.	Clients' representatives, architects, engineers, and QS according to nature of project.	
C. Outline Proposals	To determine general approach to layout, design and construction in order to obtain authoritative approval of the client on the outline proposals and accompanying report.	Develop the brief further. Carry out studies on user requirements, technical problems, planning, design and costs, as necessary to reach decisions.	All client interests, architects, engineers, QS and specialists as required.	Sketch Plans
D. Scheme Design	To complete the brief and decide on particular proposals, including planning arrangement, appearance, constructional method, outline specification, and cost, and to obtain all approvals.	Final development of the brief, full design of the project by architect, preliminary design by engineers, preparation of cost plan and full explanatory report. Submission of proposals for all approvals.	All client interests, architects, engineers, QS and specialists and all statutory and other approving authorities.	
<i>Brief should not be modified after this point.</i>				
E. Detail Design	To obtain final decision on every matter related to design, specification, construction and cost.	Full design of every part and component of the building by collaboration of all concerned. Complete cost checking of designs.	Architects, QS, engineers and specialists, contractor (if appointed).	Working Drawings
<i>Any further change in location, size, shape, or cost after this time will result in abortive work.</i>				
F. Production Information	To prepare production information and make final detailed decisions to carry out work.	Preparation of final production information i.e. drawings, schedules and specifications.	Architects, engineers and specialists, contractor (if appointed).	
G. Bills of Quantities	To prepare and complete all information and arrangements for obtaining tender.	Preparation of Bills of Quantities and tender documents.	Architects, QS, contractor (if appointed).	
H. Tender Action	Action as recommended in paras. 7-14 inclusive of 'Selective Tendering' *	Action as recommended in paras. 7-14 inclusive of 'Selective Tendering' *	Architects, QS, engineers, contractor, client.	
J. Project Planning	Action in accordance with paras. 5-10 inclusive of 'Project Management' *	Action in accordance with paras. 5-10 inclusive of 'Project Management' *	Contractor, sub-contractors.	Site Operations
K. Operations on Site	Action in accordance with paras. 11-14 inclusive of 'Project Management' *	Action in accordance with paras. 11-14 inclusive of 'Project Management' *	Architects, engineers, contractors, sub-contractors, QS, client.	
L. Completion	Action in accordance with paras. 15-18 inclusive of 'Project Management' *	Action in accordance with paras. 15-18 inclusive of 'Project Management' *	Architects, engineers, contractor, QS, client.	
M. Feed-Back	To analyse the management, construction and performance of the project.	Analysis of job records. Inspections of completed building. Studies of building in use.	Architect, engineers, QS, contractor, client.	

Figure 7.3 : The Design Activity.

Source : R.I.B.A. : Outline Plan of Work.

etc. to network simulation systems etc. If a design concept can be postulated as a model then it is capable of appraisal. The techniques used for appraisal will vary according to the design activity and in a field as complex as housing will be many.

Appraisal and measurement is therefore central to design activity for a number of reasons. They are the means by which information about performance can be fed back into a pattern of continual design improvement. In addition they offer an objective framework by which the design activity can be externalised. This has obvious advantages in aiding teamwork and continuity among personnel on lengthy projects. They also offer a means whereby the designers explicit aims can be made known and the resulting performance of the designer more objectively assessed. Lastly they offer a framework for a briefing procedure which could be more rigorous and methodical than is generally the case.

8.1 THE CHARACTERISTICS OF A HOUSING LAYOUT

The quality of a housing area depends upon the extent to which it satisfies the requirements of its inhabitants. In determining how to measure and appraise this quality it is necessary to be able to describe the characteristics that contribute to it. There are an infinite number of these characteristics, which may be dealt with at an equally infinite number of levels. It is therefore the primary intention to establish critical characteristics that apply to the design of new housing layouts.

Some of these characteristics depend upon building materials, construction methods and technology and others on the organisation of spaces for various purposes. Climatic conditions belong primarily to the first group whereas traffic separation to the latter. In the former case the quality is largely a matter of physical/physiological sensations and in the latter it is related to the movement patterns of individuals engaged in different activities.

In the structure of an appraisal and measurement form it is proposed to breakdown these characteristics into six primary groups with a further subdivision into eleven secondary groups. This structure is shown in Figure 8.1 and the complete first part of the appraisal and measurement form is contained in Appendix 1. The second part consists of working definitions and instructions for use by the appraiser.

8.2 THE STRUCTURE OF THE APPRAISAL AND MEASUREMENT FORM

The appraisal and measurement form is subdivided as follows -

a) A time scale of significant events.

This group of characteristics describes the main programming and timetabling phases of the scheme. The 'model' programme upon which the breakdown has been based is that contained in the R.I. B. A. 'Plan of Work'. In addition the main details of the construction/design team are included. Apart from this the information is all in numerical form

1 PROGRAMME	A time scale of significant events
2 STATUTORY CONTROLS	The statutory controls and standards
3 SITE	The site and climatic characteristics
4 CLIMATE	
5 SPATIAL	
6 PHYSICAL	The description of the characteristics of the built environment
7 ECONOMIC	
8 TECHNICAL	
9 ACTIVITIES	The user reaction with the resultant scheme
10 Design/client organisation	The nature motivation and aims of the client and design organisations
11 Designer/client imposed objectives	

Figure 8.1 : Structure of the Appraisal and Measurement Form.

and is further subdivided as follows -

1.00 PROGRAMME

- 01 Client
- 02 Architect
- 03 Contractor
- 04 Timetable

b) The statutory controls and standards.

A level of quality can be regulated in various forms of control. These may be direct mandatory controls (Building Byelaws, Planning Regulations) or indirect controls or pressures introduced for different reasons (Building Society restrictions). These will generally reflect the broader economic, social and political trends of the period in which they are in force. At any one time these controls will be known and apart from local interpretations it is of primary importance to identify any relaxations or deviations from the standard. The characteristics are mainly in a descriptive form and are further subdivided as follows -

2.00 STATUTORY CONTROLS

- 01 Building
- 02 Planning
- 03 Standards
- 04 Third Party
- 05 Statutory Rights

c) The site and climatic characteristics.

This group of characteristics describes the site, its original conditions, and its relationship to its immediate region; and the prevailing climate. The majority of the information is in numerical form and is subdivided as follows -

3.00 SITE

- 01 Area
- 02 Location
- 03 Previous Use
- 04 Topography
- 05 Orientation of Slope
- 06 Travel Distances

4.00 CLIMATE

- 01 Region
- 02 Meteorological Stations
- 03 Air Movement
- 04 Humidity
- 05 Radiation
- 06 Temperature
- 07 Precipitation
- 08 Atmospheric Pollution
- 09 Noise
- 10 Obstructions

d) The spatial, physical, economic and technical characteristics of the built environment.

This is the central group of the appraisal and measurement form and describes the building materials, construction methods, services, organisation and distribution of spaces and buildings, initial and operational costs and the physical/physiological performance of the buildings and layout Information is contained in numerical and descriptive form and is subdivided as follows -

5.00 SPATIAL

- 01 Category of Layout
- 02 Areas
- 03 Quantities
- 04 Population
- 05 Dwellings
- 06 Travel Distances
- 07 Services
- 08 Overlooking

6.00 PHYSICAL

- 01 Thermal
- 02 Aural
- 03 Visual
- 04 Olfactory

7.00 ECONOMIC

- 01 Tender
- 02 Contract
- 03 Capital Cost
- 04 Fees
- 05 Maintenance Cost

8.00 TECHNICAL

- 01 Elemental Description
- 02 Constructional System
- 03 Materials
- 04 Plant and Equipment

e) The user reaction with the resultant scheme.

These characteristics describe the degree to which the occupants requirements and satisfaction has been met by the scheme. In the level of the appraisal and measurement form contained in Appendix 1 these characteristics are obtained by the application of check lists. Information is contained in numerical form using simple yes/no answers. In the appraisal and measurement form the characteristics are subdivided as follows -

9.00 ACTIVITIES

- 01 Site Layout
- 02 Dwelling Design

f) The nature, motivation and aims of the client and design organisations.

This group of characteristics describes the background to the design history of the project, and distinguishes the aims and objectives of both the client and designer. If the first five groups of characteristics are said to be external or extrinsic descriptions this group may be said to be an internal or intrinsic description. Information is contained in descriptive form and is subdivided as follows -

10.00 DESIGN/CLIENT BACKGROUND

- 01 Architect
- 02 Client
- 03 Consultants
- 04 Design Category
- 05 Design History

11. 00 DESIGNER/CLIENT IMPOSED CONSIDERATIONS

- 01 Brief
- 02 Programme
- 03 Site
- 04 Climate
- 05 Spatial
- 06 Physical
- 07 Economic
- 08 Technical
- 09 Activities
- 10 Organisations

Within this broad framework the individual characteristics can be measured and appraised at a variety of levels. Each level can be defined either by the method or activity used to obtain the information, or the technique used to assess the measurement of performance. The methods employed in the appraisal and measurement form developed for the Housing Intelligence Bank¹³⁵ are shown in Figure 8.2. These methods are -

- 1) Existing published information, i. e. by information contained in books, magazines, newspapers, etc.
- 2) Correspondence with designer, i. e. by standard questionnaire.
- 3) Desk appraisal and measurement, i. e. by measuring drawings of the scheme and applying standard check lists.
- 4) Field appraisal and measurement, i. e. by observation, interview and measurement conducted on the housing site and by interview with designer and client.

These methods are related directly through their complexity to an operational time scale which forms the basis for the levels used in the Housing Intelligence Bank.

PROGRAMME	STATUTORY CONTROLS	SITE	CLIMATE	SPATIAL	PHYSICAL	ECONOMIC	TECHNICAL	ACTIVITIES	DESIGN/ CLIENT ORGANISATION	DESIGNER/ CLIENT IMPOSED OBJECTIVES
	existing	published information								
	correspondence	with designer								
	desk appraisal	and measurement								
	field appraisal	and measurement								

Figure 8.2 : Methods of Appraisal and Measurement.

The techniques of appraisal and measurement as expected when applied to such a wide range of characteristics are varied but may be categorised as follows -

- a) Existing techniques
- b) Developments of existing techniques
- c) New techniques

Existing techniques (e. g. density measurement) need no explanation and within the framework have the added advantage that there usually exists a body of information which can be utilised for comparative purposes. For this reason well established techniques have been fitted into the framework without modification (e. g. Square foot cost analyses) wherever possible. The development of existing techniques and the introduction of new techniques therefore suffers from the fact that until they have been in operation for some time there is little existing material to evaluate findings with. Nevertheless some techniques, such as the measurement of land use distribution are seen as being a valuable aid for designers and this seems one area where a store of information needs compiling rapidly. In addition new techniques can be introduced in areas where yardsticks do exist, but where the existing techniques do not meet other requirements (e. g. the length of time the application of existing technique take, e. g. a social survey).

The characteristics describing housing schemes are either in numerical (quantity, area, height, etc.) or descriptive (names, specifications, etc.) form. Within the appraisal and measurement form illustrated, there are some 1050 numerical characteristics and 400 descriptive passages. In the context of the Housing Intelligence Bank project this data is first processed¹ and then stored on computer tape or discs. A designer having access to this bank can then match a particular set of requirements (his brief), to schemes already contained in the data bank, and rapidly locate existing housing schemes that completely or partially meet these requirements.

1. Some characteristics are combined to form indices, while the descriptive passages are coded into blocks of keywords.

The large number of characteristics combined with a high rate of scheme sampling and the need for rapid retrieval makes the use of a computer essential. Primarily seen as a method of matching designers' briefs to existing solutions, such a data store can be manipulated in many other ways. The interactions between characteristics, and groups of characteristics, can be compared in different schemes and relationships examined.

To examine the application and potential of appraisal and measurement methods three case studies have been carried out involving seventeen housing schemes. The first case study examines spatial distribution in the simplest form of housing layout, single storey housing. The second study takes a more complex form of housing, predominantly two storey, and compares the spatial distribution in schemes designed by different design situations. Both these studies are discussed in the next chapter, the former is dealt with briefly but the latter at some length. The third and final case study which is described in Chapter 10 relates the spatial distribution of four housing schemes designed by one organisation to the degree of user satisfaction. All the schemes have been designed within the last ten years.

The estates were subjectively selected for study from an initial sample of over 200. The criteria for selection was that each estate should be considered a good example of its kind and that there should be as much information available as possible about it. In drawing conclusions, therefore, this needs to be borne in mind. In particular, the distribution of space within housing layouts is worthy of a much larger sample; the quantity of data to be handled would necessitate the use of more mechanised and refined methods of manipulating the information.

a site visit. Areas of different land use are then computed from the drawings under the following main headings -

1. Roads
2. Parking, Hardstanding
3. Garaging
4. Pedestrian Paths
5. Playgrounds
6. Public Open Space
7. Habitable
8. Private Open Space
9. Ancillary

The results of measurement and appraisal of areas allocated to different land use categories are contained in Appendix 3. They give an indication into the priorities that have been adopted in the design of housing layouts. The detailed results are not discussed here but certain broad conclusions can be drawn. There are, for instance, some priorities in this allocation that are not within the direct control of the designer and are predetermined for him; for example, the habitable area per bedspace at all densities is determined in local authority housing by government controls and is therefore constant. The effect of increasing density has been shown to steadily increase the overall area per bedspace. It is therefore important to identify the constant rates within the overall rates. The habitable area per bedspace remains constant at slightly higher than the national average of 200 square feet. The area of ancillary building at these densities remains negligible. The standard of car provision remains uniform in terms of car spaces and the combined provision of roads, parking spaces and garages remains uniform as well. These constant rates account for some 40 to 50 per cent of the overall areas. The effect of increasing density in this case therefore is to reduce the combined rate of private ways and playgrounds; the individual rate for each of these categories is primarily in the control of the designer. In the six estates studied the greatest fluctuation occurs in the public open space category, the rate per bedspace rapidly decreasing as density increases. With the exception of

The Ryde (a housing society scheme), private open space falls only slightly, but consistently, with density increases. The area for pedestrian ways fluctuates considerably but does not account for a high proportion of space in any layout. Playgrounds will become more of a constant as Ministry standards are accepted but (with the exception of The Ryde) do not account for a significant area on these estates.

9.2 LAND USE DISTRIBUTION AND THE DESIGN SITUATION

This second study, whilst utilizing the same basic method as the first, explores the spatial distribution within a more complex form of housing. In particular, it examines the variation in space distribution that occurs in housing estates produced by different categories of design situations. Eight estates are analysed which represent typical client/designer relationships. They are:

ESTATE	CLIENT	DESIGNER
1) The public sector		
Milton Road	a) London Borough	Own Architect
Primrose Hill	b) County Borough	Own Architect
Woodway Lane	c) County Borough as a Consortium member	Consortium's own Architect
West Ham	d) London Borough	Central Government
Trotts Hill	e) New Town Development Corporation	Own Architect
2) The private sector		
Parkhill Rise	a) Developer/Builder	Own Architect
	b) Developer	Private Architect
3) Housing Societies		
Walsgrove	a) Housing Society	Private Architect

The estates were subjectively selected from an initial sample of 200 as being typical as good examples of housing layouts.

The first objective is therefore to establish the actual areas devoted to certain categories of use in the selected estates. The second objective

is to demonstrate the range of differences in standards achieved between the estates, and to examine these differences in the light of their various client/designer categories.

The method employed is that of desk appraisal and measurement as described previously. The eight estates selected are -

FIELDEND, TWICKENHAM (Figure 9.1)

This estate of 51 houses was designed by Eric Lyons for Span Developments Ltd. The houses are all two storey and are laid out in terraces around a large green which is restricted to pedestrians. The architects were commissioned and a design approved in 1959; building commenced in April 1960 and was completed in 1961. The site is 5.10 acres in area and is flat. The main part of the site is set well back from a distributor road. Each dwelling has an enclosed back garden leading on to a pedestrian path system. Entry to the site is by a single cul de sac with visitors' car parking at the head. This continues into a perimeter road giving rear access to the dwellings. Garages are grouped, mainly on the boundary of the site, along the service road. The density is 50 bedspaces per acre.

TROTTS HILL, PIN GREEN, STEVENAGE NEW TOWN (Figure 9.2)

This estate of 320 dwellings was designed by the architects' department of Stevenage Development Corporation. It is part of a larger area of 809 dwellings in the Pin Green area of Stevenage. The area of the site studied was 22.6 acres and slopes from east to west at an average gradient of 1 in 15. The architects were commissioned in 1965 and

a design approved in 1965; building commenced in 1967 and completion was in 1969. The layout consists of 80 per cent two and three storey terrace housing and 20 per cent flats in two and three storey blocks. In addition there are sites within Trotts Hill for the future construction of medium rise blocks of flats. Pedestrian and vehicular separation is strictly enforced, fences are erected between vehicular courts and pedestrian ways. The dwellings are served by loop roads with short culs de sac, the majority of dwellings have individual garages off these and within the curtilage of the house plot. Gardens are provided on the vehicular side with access to the culs de sac. The density is 62.6 bedspaces per acre.

PRIMROSE HILL, BIRMINGHAM (Figure 9.3)

This estate was designed by the City Architect for Birmingham County Borough Council. There are 552 dwellings consisting mainly of terraces of two storey houses with some flats and maisonettes. The site of 32.7 acres is on a south-east slope with gradients varying from 1 in 12 in the west to 1 in 40 in the east with occasional steep slopes. The architect was commissioned in 1962 and a design accepted in 1964; building commenced in 1965 and completion was in 1968. The levels of the site are exploited by incorporating dwellings built over garages. On the south-west of the site terraces follow the contours, every other row having garages integrated with the houses on the lower side of the slope. The flatter parts of the site to the north and east are used for groups of semi-detached houses with gardens at their sides. A sixteen

storey block of flats is sited adjacent to the community buildings near the centre of the site. A number of four storey maisonette blocks are sited alongside the walkway and the boundaries of the site. Culs de sac lead into the site at frequent intervals from a boundary distributor road. Garage provision of one per dwelling is provided in groups or at the ends of gardens. An additional 30 per cent parking spaces are provided for visitors. The density is 64.0 bedspaces per acre.

WOODWAY LANE, COVENTRY (Figure 9.4)

This estate was designed by the Midlands Housing Consortium for Coventry County Borough Council. There are 116 two storey wide frontage houses with attached garages, and 16 single storey wide frontage houses. The total area of the site is 8.25 acres and has a slope of 1 in 20 from east to west. The architects were commissioned in 1962 and a design approved in 1963; building commenced in October 1964 and was completed in July 1965. The layout takes the form of parallel terraces of dual aspect houses with direct road access to most dwellings on one side and a pedestrian footpath network on the other. All the dwellings have enclosed private gardens, mostly opening on to the roads, and open gardens on the footpath side. Small play areas have been distributed throughout the site. Access roads pass all dwellings and 95 per cent car accommodation is provided. The density is 72.5 bedspaces per acre.

PARKHILL RISE, CROYDON (Figure 9.5)

This estate was designed for Wates Ltd. by their own architects' department. There are 78 dwellings consisting of 38 three storey houses and 40

two storey houses. The site of 5.37 acres is flat and contains a number of mature trees. The architects department were commissioned and a design approved in 1962; building commenced in March 1963 and was completed in June 1964. The layout takes the form of terraces of houses, some having integral garages and fronting on to service roads, and some having detached garages in groups. All dwellings have private gardens. Two culs de sac service the site and contain visitors' car parking. There is no children's play area as such, but all the dwellings have access to three areas of public open space. The density is 72.5 bedspaces per acre.

RAVENSCROFT ROAD, WEST HAM (Figure 9.6)

This estate of thirty-nine two and three storey houses was designed by the Ministry of housing and local government Development Group for West Ham Borough Council. The total area of the site is 2.59 acres and is mainly flat. The architects were commissioned in 1961 and a design approved in 1962; building commenced in 1963 and completion was in 1964. The houses are grouped around the edge of the site enclosing a central common space. Each house is approached either from the pavement or from a pedestrian court and is provided with a partially enclosed front garden leading on to the common space. Vehicular access is from the encircling roads or a cul de sac and some houses have integral garages with visitors' or second car space, while some houses have grouped garages and parking spaces. The density is 72.6 bedspaces per acre.

HINCKLEY ROAD, WALSGROVE, COVENTRY (Figure 9.7)

This estate of 94 single and two storey courtyard houses was designed by Thorne and Barton for the Coventry and Midlands Housing Association. The site consists of 5.01 acres of flat land with a line of mature trees on the eastern boundary of the site. The architects were commissioned in December 1964 and a design approved in August 1965; building work commenced in February 1966 and completion was in 1969. The scheme has a separate vehicular and pedestrian system and adjoins a public open space. The predominant unit used throughout the site consists of eight dwellings, comprising four two storey five person houses and four single storey four person houses. Built tightly on to the pedestrian ways, the courtyards are grouped together in the centre of the unit. Visitors' parking is provided in the service road, and garaging is mainly provided on the periphery of the site under two storey blocks of flats. The density is 84.8 bedspaces per acre.

MILTON ROAD, HARINGEY (Figure 9.8)

This estate was designed by the Borough Architect for the London Borough of Merton. There are 102 dwellings: 74 two storey houses and 28 flats in two storey blocks. The total area of the site is 3.71 acres and is flat. The architect was commissioned and a design approved in 1965; building commenced in September 1966 and completion was in September 1968. All the dwellings are contained in five blocks of narrow frontage terrace units. All the houses have small enclosed private gardens and the flats have balconies of 44 square feet. Open and decked car hardstandings and grouped garages are provided around

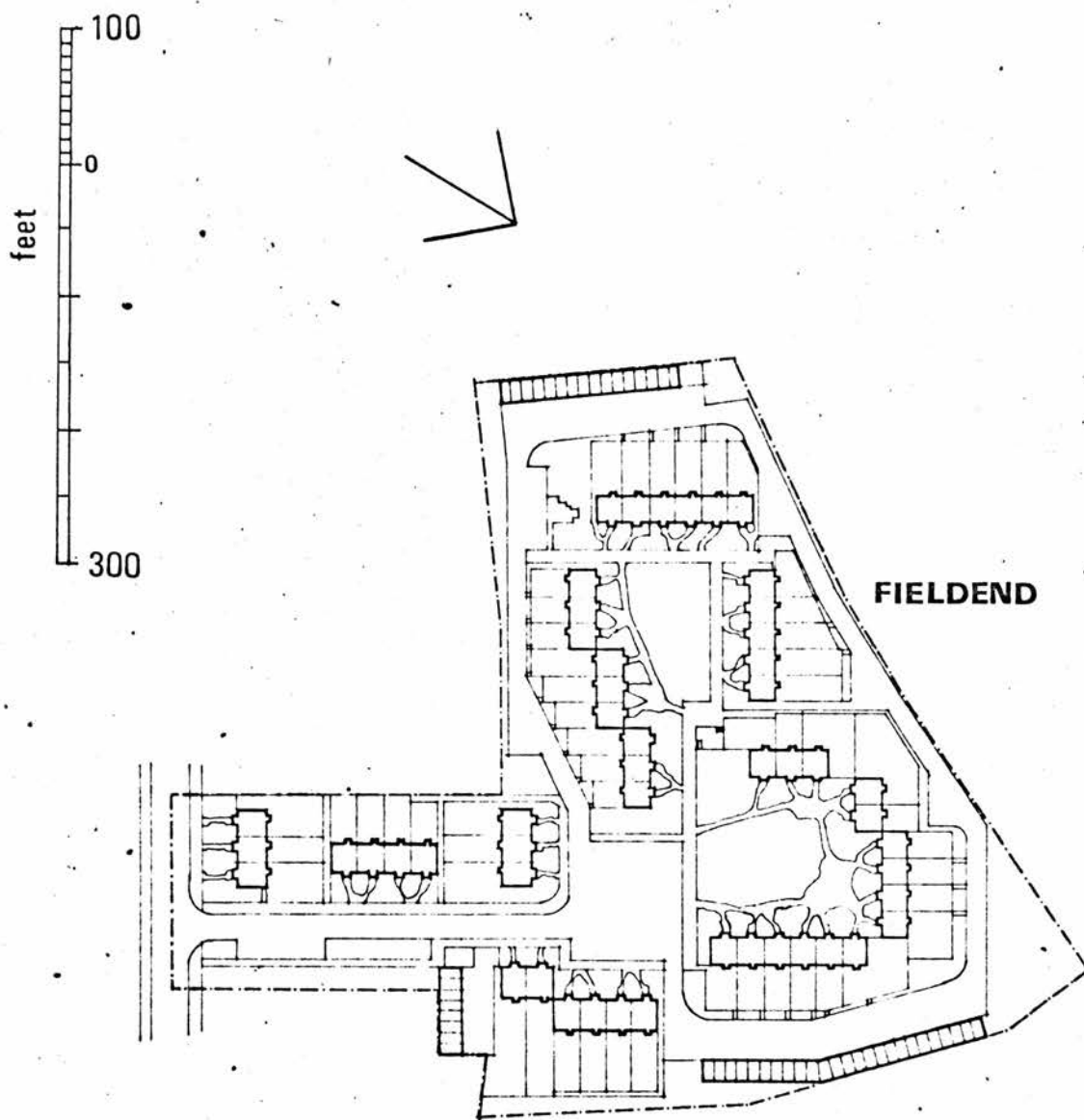


Figure 9.1 : Layout of Fieldend, Twickenham.

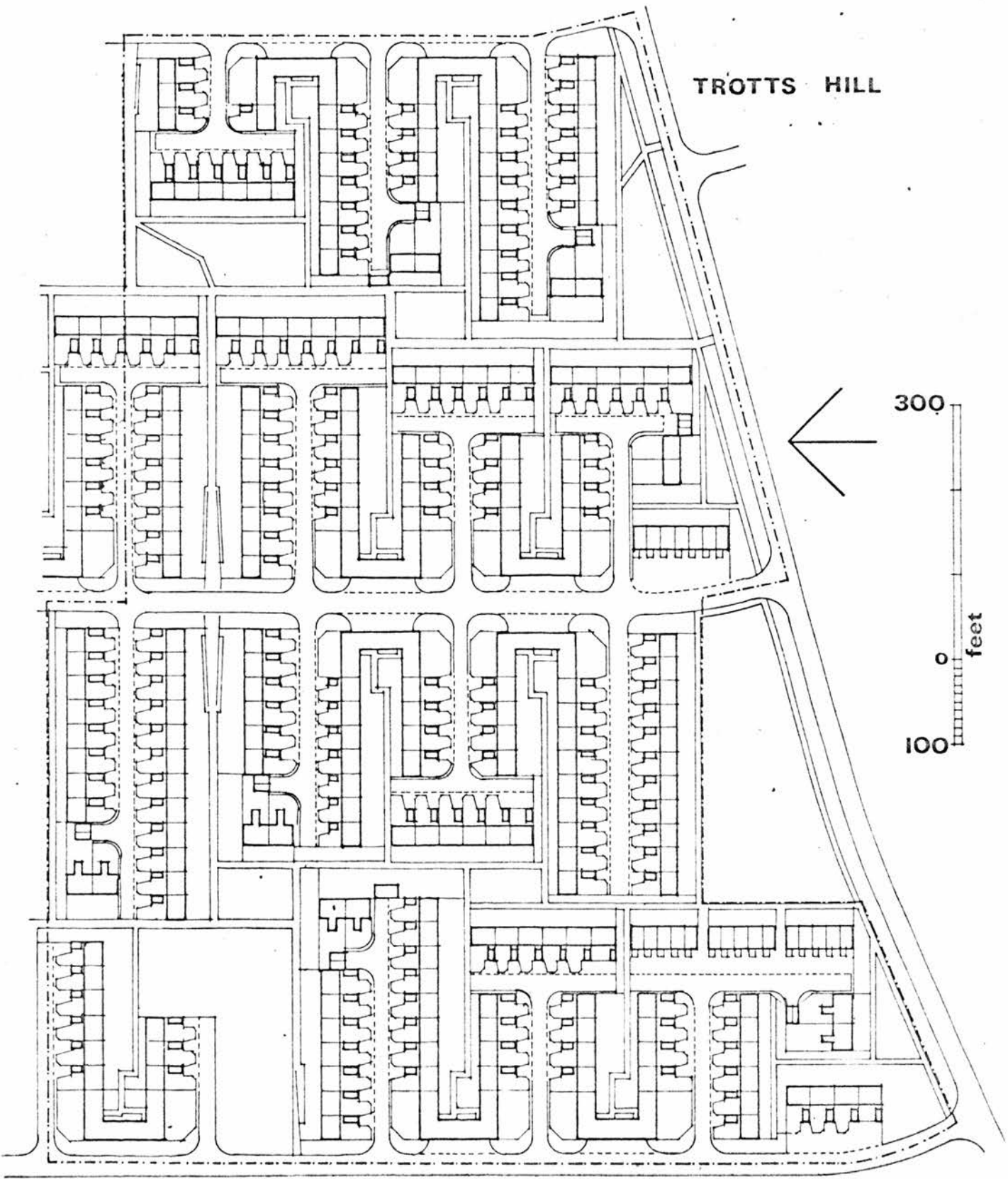


Figure 9.2 : Layout of Troatts Hill, Stevenage.

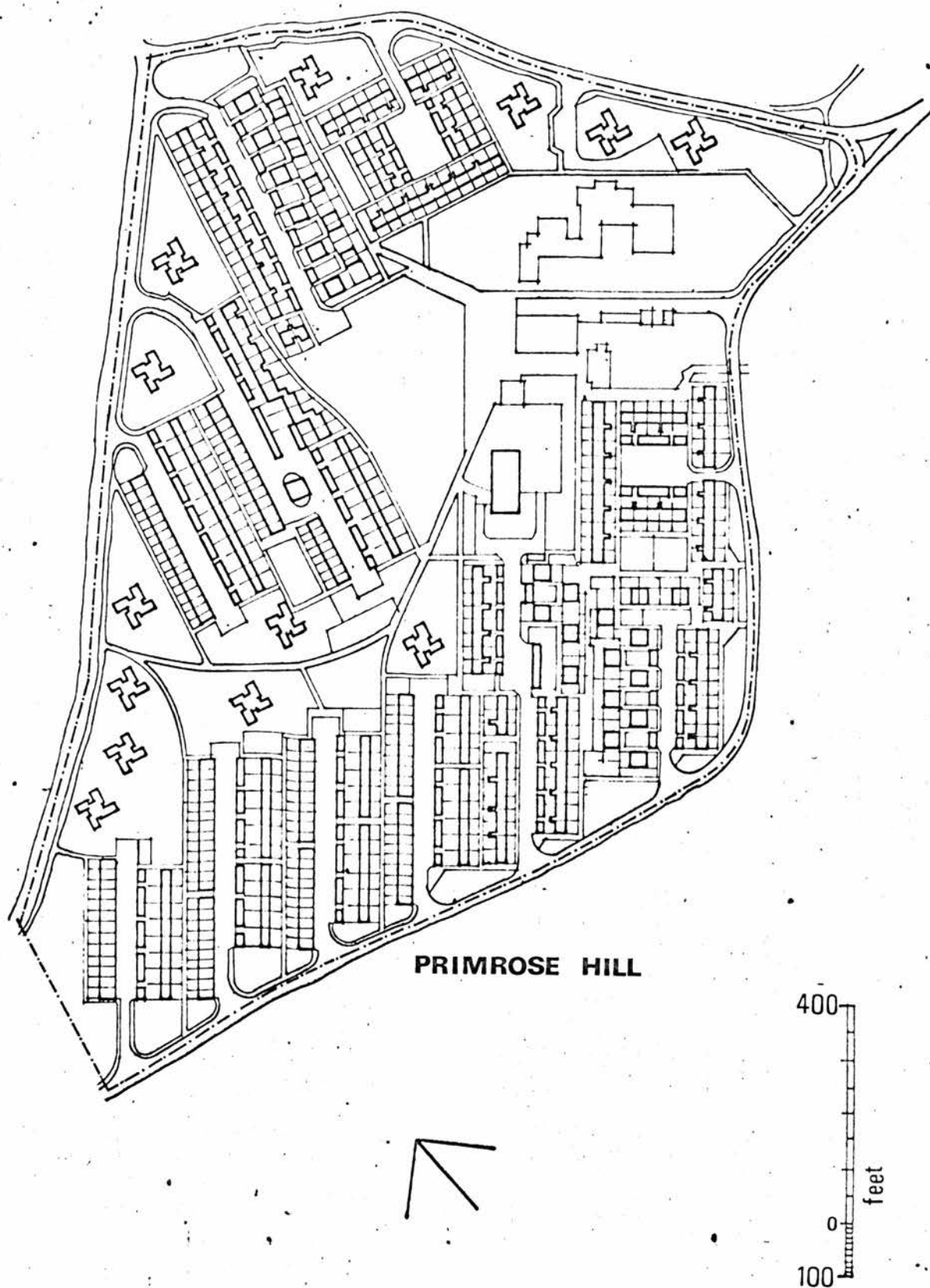
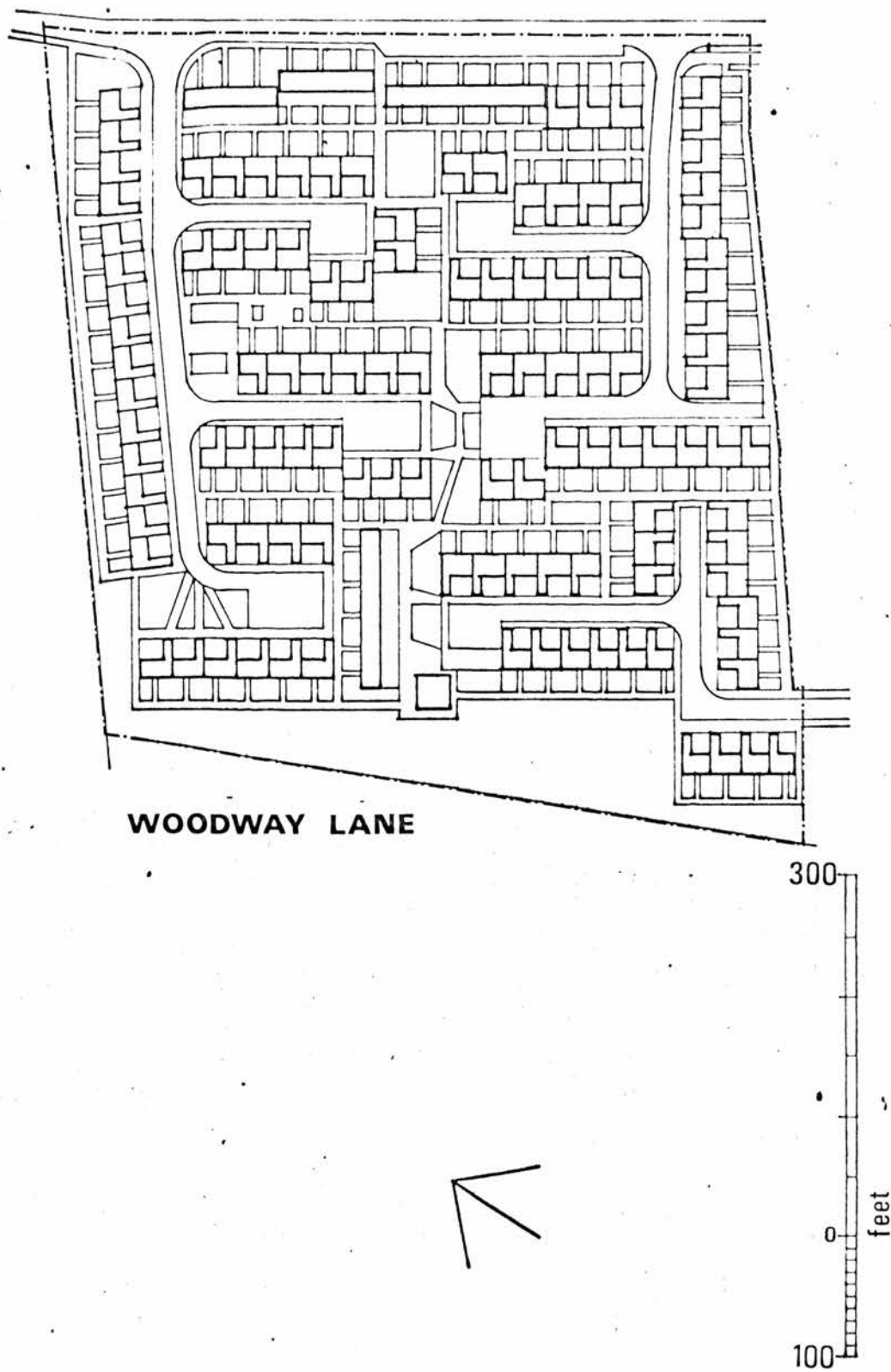


Figure 9.3 : Layout of Primrose Hill, Birmingham.



PARKHILL RISE

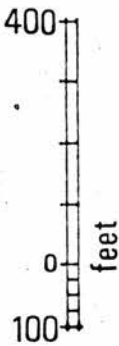
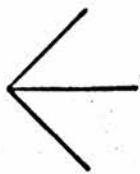
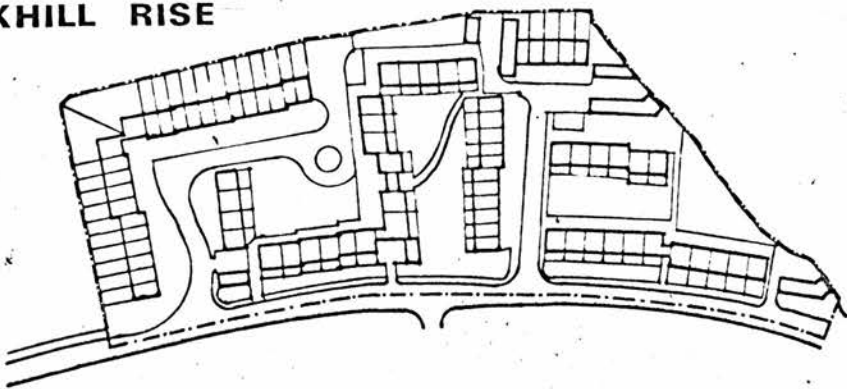


Figure 9.5 : Layout of Parkhill Rise, Croydon.

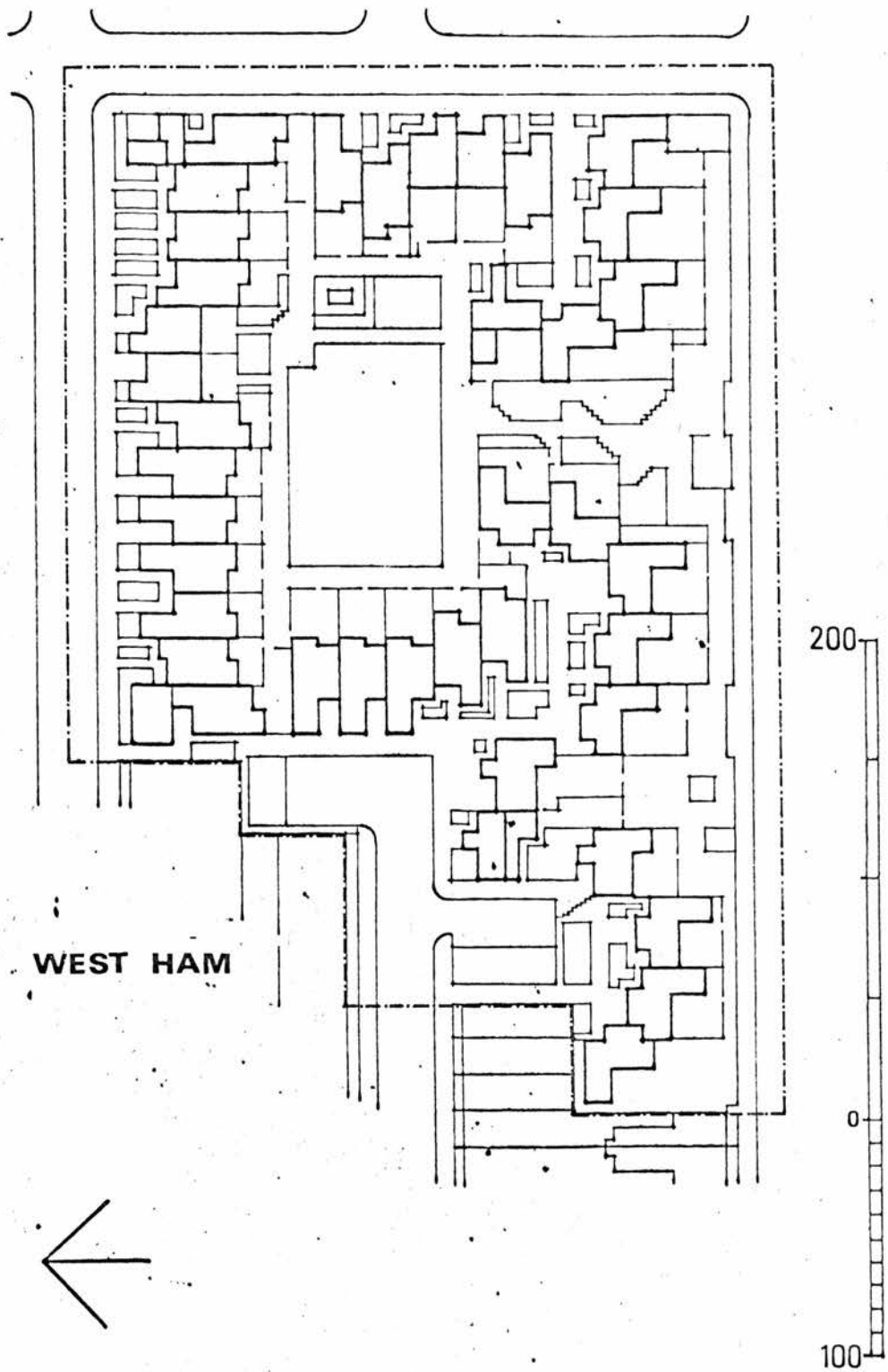


Figure 9.6 : Layout of Ravenscroft Road, West Ham.

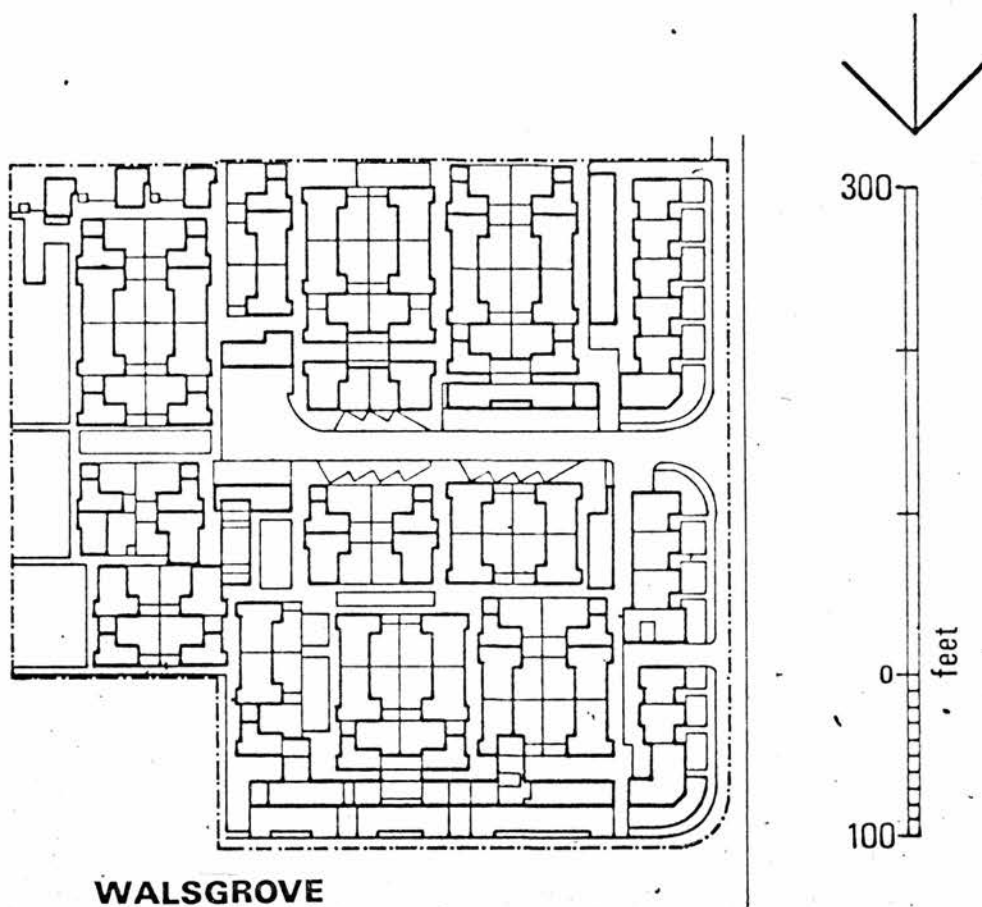


Figure 9.7 : Layout of Walsgrove, Coventry.

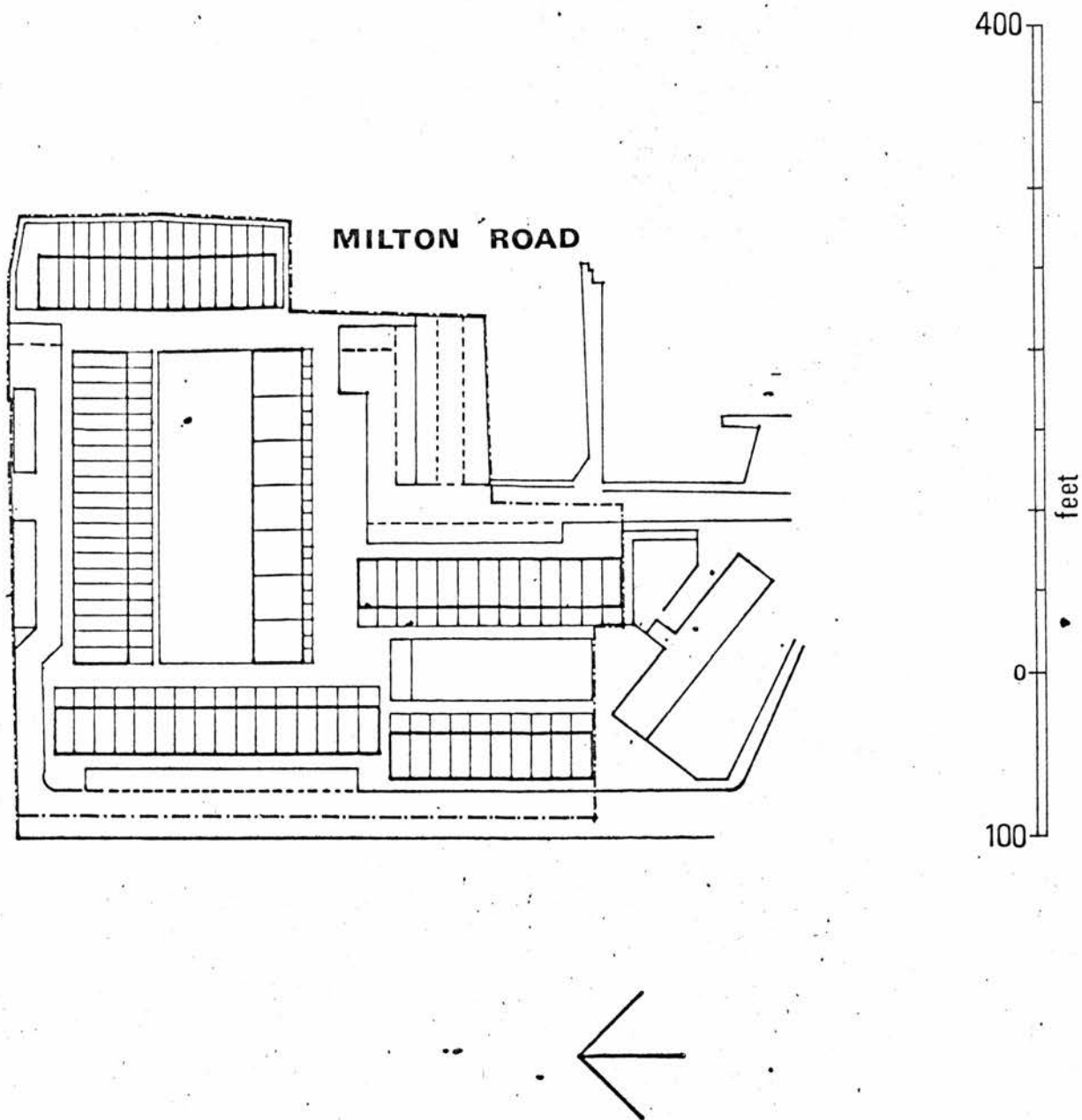


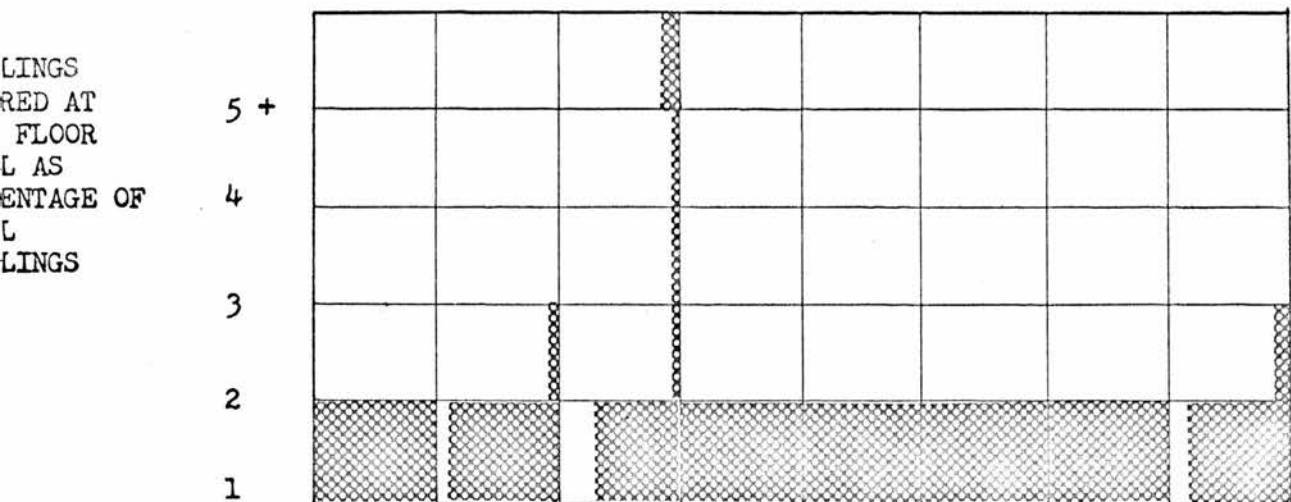
Figure 9.8 : Layout of Milton Road, Haringey.

the perimeter of the site. One of the parking areas has been roofed over to provide a play deck. Of the 114 car spaces 19 are garages and 95 hardstandings. The density is 106 bedspaces per acre.

9.1 THE COMPARATIVE ANALYSIS

The basic analysis is summarised on Figure 9.10 and covers site area, accommodation, building date and the proportion of dwellings having access at various levels. The eight estates are listed in order of increasing density measured in bedspaces per acre. Building on all eight estates was started in the same period as for the single storey estates, i.e. between 1960 and 1970. With the exception of Fieldend, (which was designed in 1959) all were designed in this decade as well. All the estates are in England and are therefore subject to similar statutory controls. The five public sector estates are all designed to Parker Morris standards as is the Housing Society estate. Both the private sector estates contain houses that are only in owner occupation. Five estates, Fieldend, Woodway Lane, Parkhill Rise, West Ham and Walsgrove contain dwellings with access from ground level only. Fieldend, contains some three storey houses, and Walsgrove, contains some single storey houses. Trotts Hill and Milton Road contain a small proportion of two storey flats. Primrose Hill is the only estate that contains dwellings in a high rise form. This is in the form of a 16 storey block of flats.

The estates vary in size from West Ham, with 39 dwellings on 2.59 acres, to Primrose Hill, with 552 dwellings on 32.7 acres. The density



AGE BEDSPACES/ LING	5.00	4.40	4.10	4.30	5.00	4.82	4.50	3.83
AGE HABITABLE /DWELLING	4.00	4.40	4.32	4.30	4.90	5.92	4.50	3.10
AGE BEDSPACE/ TABLE ROOM	1.25	1.0	0.94	1.00	1.00	0.82	1.00	1.23
TABLE AREA BEDSPACE	130	111	118	120	152	143	122	121
LINGS/ACRE	10.0	14.2	14.8	15.3	14.4	15.0	18.8	28.0
PACES/ACRE	50	62.6	64.0	69.5	72.5	72.6	84.8	107.4

BUILDING BEGAN	61	69	68	64	64	64	70	68
L BEDSPACES	255	1417	2260	573	390	188	423	391
L HABITABLE ROOMS	204	1401	2388	573	388	231	421	317
L DWELLINGS	51	320	552	132	78	39	94	102
AREA IN ACRES	5.1	22.6	32.7	8.30	5.37	2.59	4.98	3.64
FIELDEND								
TROTTS HILL								
PRIMROSE HILL								
WOODWAY LANE								
PARKHILL RISE								
WEST HAM								
WALSGROVE								
MILTON ROAD								

Figure 9.9 : Basic Analysis : Two Storey Layouts.

varies from Fieldend, 50 bedspaces per acre, to Milton Road, with 107.4 bedspaces per acre. Five of the estates, Trotts Hill, Primrose Hill, Woodway Lane, Parkhill Rise and West Ham, only range between 62.6 and 72.6 bedspaces per acre.

The proportions of dwelling sizes are similar in most cases with two notable exceptions. Parkhill contains only large dwellings, either two or three storey four bedroom houses, and this accounts for the high average number of habitable rooms (4.90) and bedspaces (5.0) per dwelling. West Ham also contains houses of a large area with an amount of adjustable partitioning which permits some rooms to be subdivided. The high average habitable room per dwelling (5.92) is a reflection of this.

The highest planned provision for car spaces occurs on Fieldend (172 per cent). The five estates with the lowest density all have comparable garage provision at between 92 and 100 per cent. Apart from Fieldend the total provision of car spaces (including hardstandings) varies between 110 and 135 per cent. The three estates with the highest density have a significantly lower provision of garages (16 - 52 per cent) but only a slightly lower provision of total car spaces (100 to 120 per cent).

9.2 ANALYSIS OF AREAS PER BEDSPACE

An analysis of areas per bedspace for each estate is presented graphically in Figure 9.11. This illustrates the effect of increased density, both in terms of overall area per bedspace, and in the distribution of area

ESTATE	habitable area at		TOTAL
	GROUND LEVEL	HIGHER LEVELS	
FIELDEND	130	130	260
TROTTS HILL	111	100	211
PRIMROSE HILL	118	120	238
WOODWAY LANE	120	100	220
PARKHILL RISE	152	160	312
WEST HAM	143	70	213
WALSGROVE	122	60	188
MILTON ROAD	121	110	231

Figure 9.10: Total Habitable Area per bedspace.

Square feet per bedspace

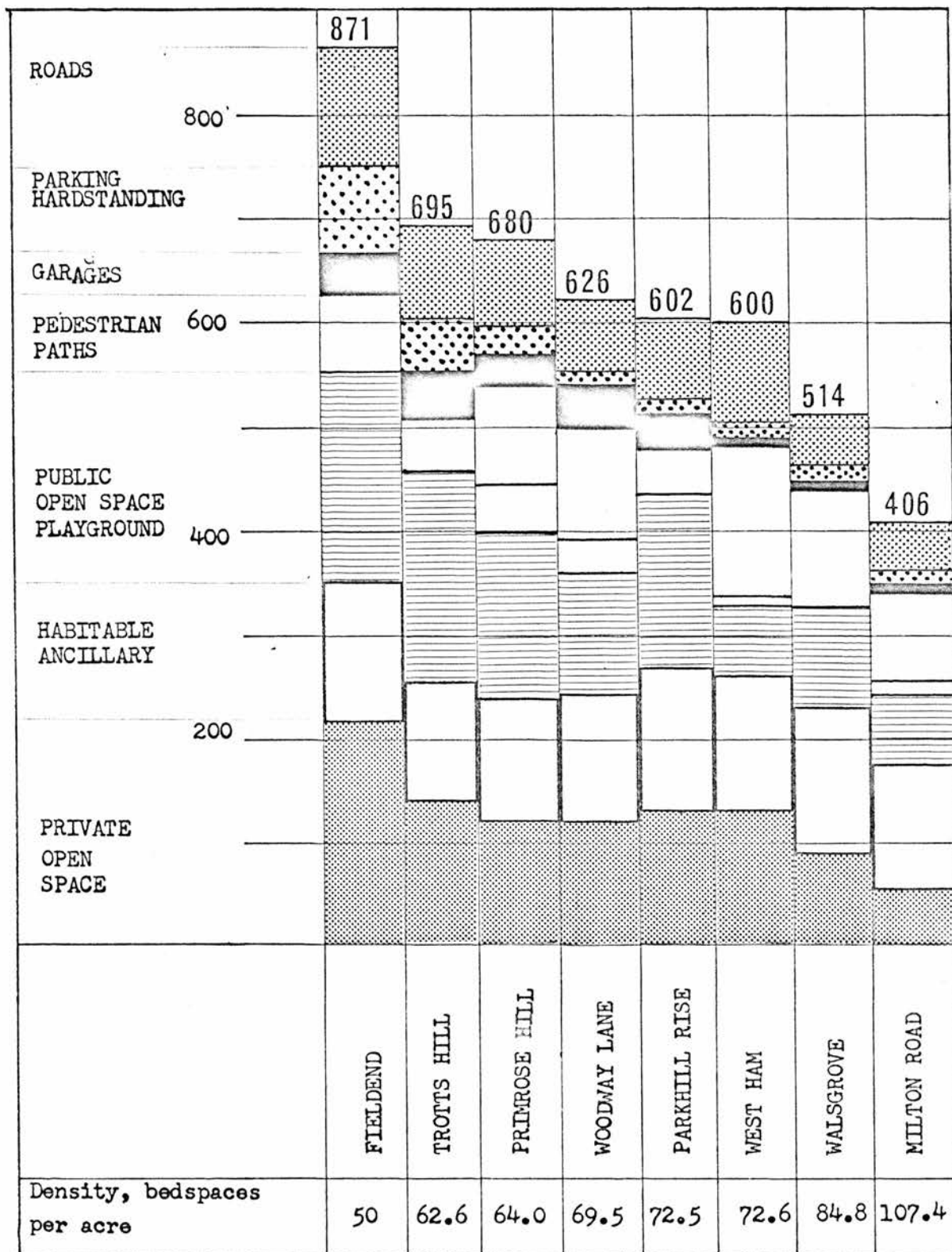


Figure 9.11 : Analysis of Areas per Bedspace

	FIELDEND	TROTTS HILL	PRIMROSE HILL	WOODWAY LANE	PARKHILL RISE	WEST HAM	WALSGROVE	MILTON ROAD
1. ROADS	123	91	85	78	75	97	52	40
2. PARKING, HARDSTANDING	84	62	41	13	13	13	21	16
3. GARAGING	40	38	20	34	31	10	8	12
SUB TOTAL	247	191	146	125	119	120	81	68
4. PEDESTRIAN PATHS	72	62	95	106	52	142	113	86
5. PLAYGROUND	0	0	41	22	0	7	0	11
6. PUBLIC OPEN SPACE	204	190	163	135	158	66	97	61
SUB TOTAL	276	252	299	263	210	215	210	158
7. HABITABLE	130	111	118	120	152	143	122	121
8. PRIVATE OPEN SPACE	218	138	115	116	121	122	95	59
9. ANCILLARY	0	3	2	2	0	0	6	0
SUB TOTAL	348	252	235	238	273	265	223	180
TOTAL	871	695	680	626	602	600	514	406

Figure 9.12 : Square Feet per Bedspace

per bedspace for each land use function. The overall area per bedspace ranges from 871 square feet for Fieldend to 406 square feet for Milton Road.

The habitable area per bedspace shows a distinction between the public and private sector estates. To the area measured at ground level given in Figure 9.12 must be added habitable area contained at higher levels. Figure 9.10 gives total habitable areas per bedspace.

The two private sector estates have the highest total habitable area per bedspace at 312 and 260 square feet respectively. By contrast the Housing Society estate has the lowest habitable area per bedspace rate at 188 square feet. The five public sector estates are all above the national average and have a narrow range of between 211 square feet and 238 square feet. The rate of provision of ancillary area is similar to the single storey estates and of negligible proportions. There is no apparent shift of habitable and ancillary area per bedspace that can be related to changes in density.

The private open space rate ranges from 59 square feet per bedspace at Milton Road to 218 square feet per bedspace at Fieldend. There is a general decrease in this rate as density increases. The estates within the density band 62.6 to 72.6 bedspaces per acre have a range of only 23 square feet. Fieldend has a very high private open space allocation, higher than any of the single storey estates. The provision of playgrounds is again inconsistent with four of the estates having no provision at all.

Included in these are both private sector estates and the Housing Society estate. Primrose Hill and Woodway Lane, with 41 and 22 square feet per person respectively, are both above Ministry targets. West Ham (designed by the Ministry's own Research and Development Group) and Milton Road fall short of these targets.

The variation amongst the estates in the distribution of public open space is considerable, ranging from Fieldend (204 square feet) to Milton Road (61 square feet). The decrease in this rate with increase in density is not as uniform as in the case of the single storey estates. West Ham, Walsgrove and Milton Road, the estates with the highest density have the lowest public open space rate at 61 to 97 square feet per bedspace. Trotts Hill, Primrose Hill, Woodway Lane and Parkhill Rise, with a density range of 62.6 to 72.5 bedspaces per acre have a public open space rate of between 135 to 190 square feet per bedspace. Both private sector estates and Housing Society estate have a higher rate of public open space provision for their density, compared to the public sector estates. The rates of pedestrian path provision shows no relationship to density and ranges between Trotts Hill (62 square feet per bedspace) and West Ham (142 square feet per bedspace).

The rates of space for roads, parking and garages must be considered in relation to the general provision for the motor car. (See Figure 9.13). Fieldend with the highest combined (garages and hardstandings) provision of 172 per cent car spaces has a rate of 247 square feet per bedspace. West Ham with the lowest combined provision of 100 per cent car spaces has a rate of 120 square feet per bedspace. Both Walsgrove and Milton Road

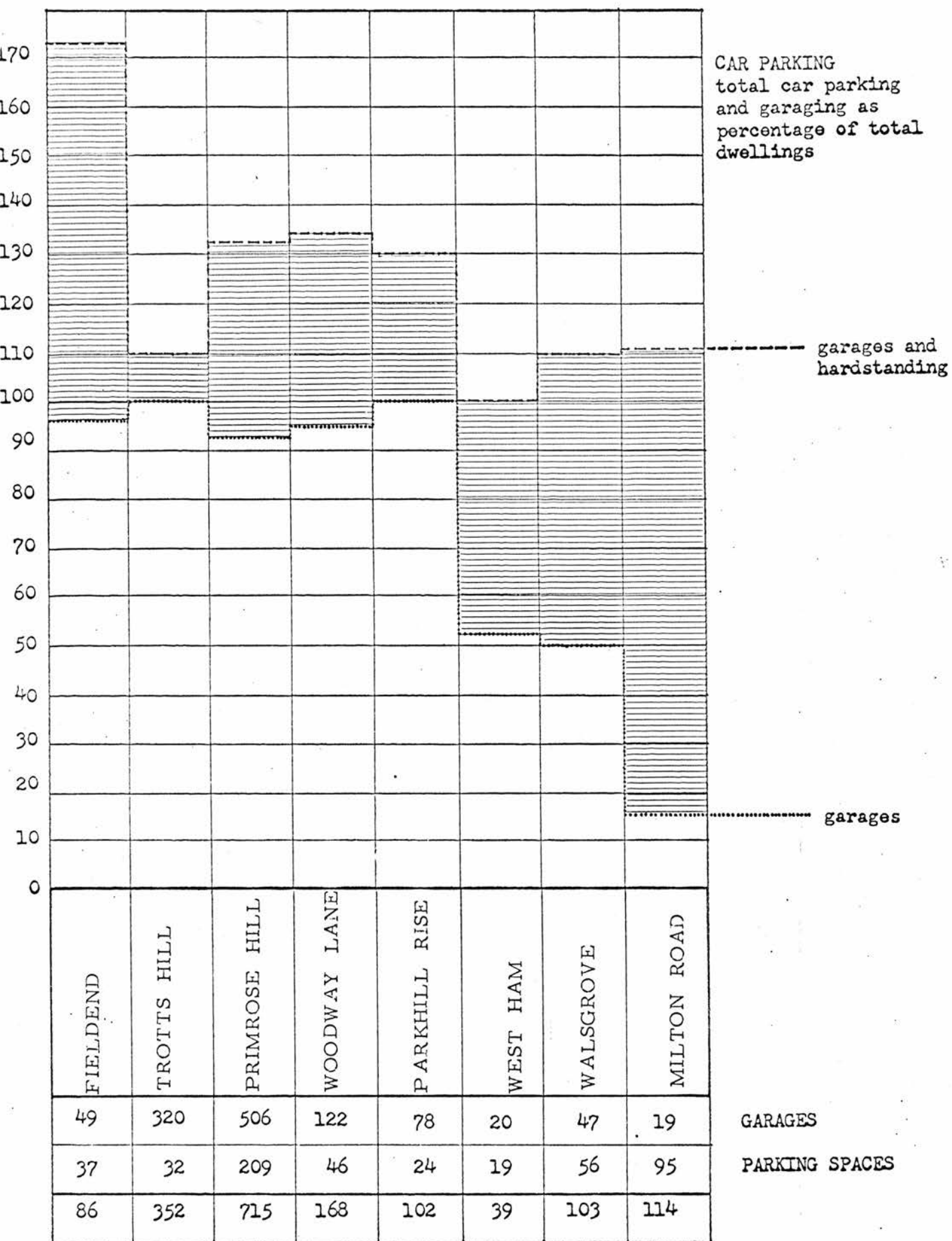


Figure 9.13 : Standard of Provision for the Car.

have a lower rate of provision (81 and 68 square feet per bedspace) but a higher rate of car space provision (120 and 111 per cent respectively). This can be explained by the significantly higher space rate for roads at West Ham than Walgrove and Milton Roads. Parking and garaging area per bedspace, is in fact lower at West Ham (23 square feet) than Walsgrove (29 square feet) and Milton Road (28 square feet). Fieldend has the highest rate of space provided for roads (123 square feet per bedspace) which is accounted for by a perimeter road giving car access to all houses. The two estates with the highest density have the lowest space rate for roads at 52 and 40 square feet respectively. The other five estates have similar provision at between 75 square feet and 97 square feet. Fieldend with a hardstanding provision of 76 per cent has an area per bedspace rate of 84 square feet allocated to hardstandings alone. This compares with a rate of 40 square feet for a garage provision of 96 per cent. The five estates with a garage provision of between 92 and 100 per cent have a range of 20 to 40 square feet per bedspace provided for garages. The three estates with a garage provision of between 16 and 52 per cent have a range of between 8 and 12 square feet per bedspace. The area per bedspace provided for parking fluctuates considerably, from 13 to 84 square feet, and bears no obvious relationship to density increases or car provision increases.

9.3 ANALYSIS OF DISTRIBUTION OF SITE AREA

An analysis of the areas expressed as a percentage of the site area, for each estate, is shown in Figure 9.14. The categories of use are those used in the first case study, namely, roads and car space, public open

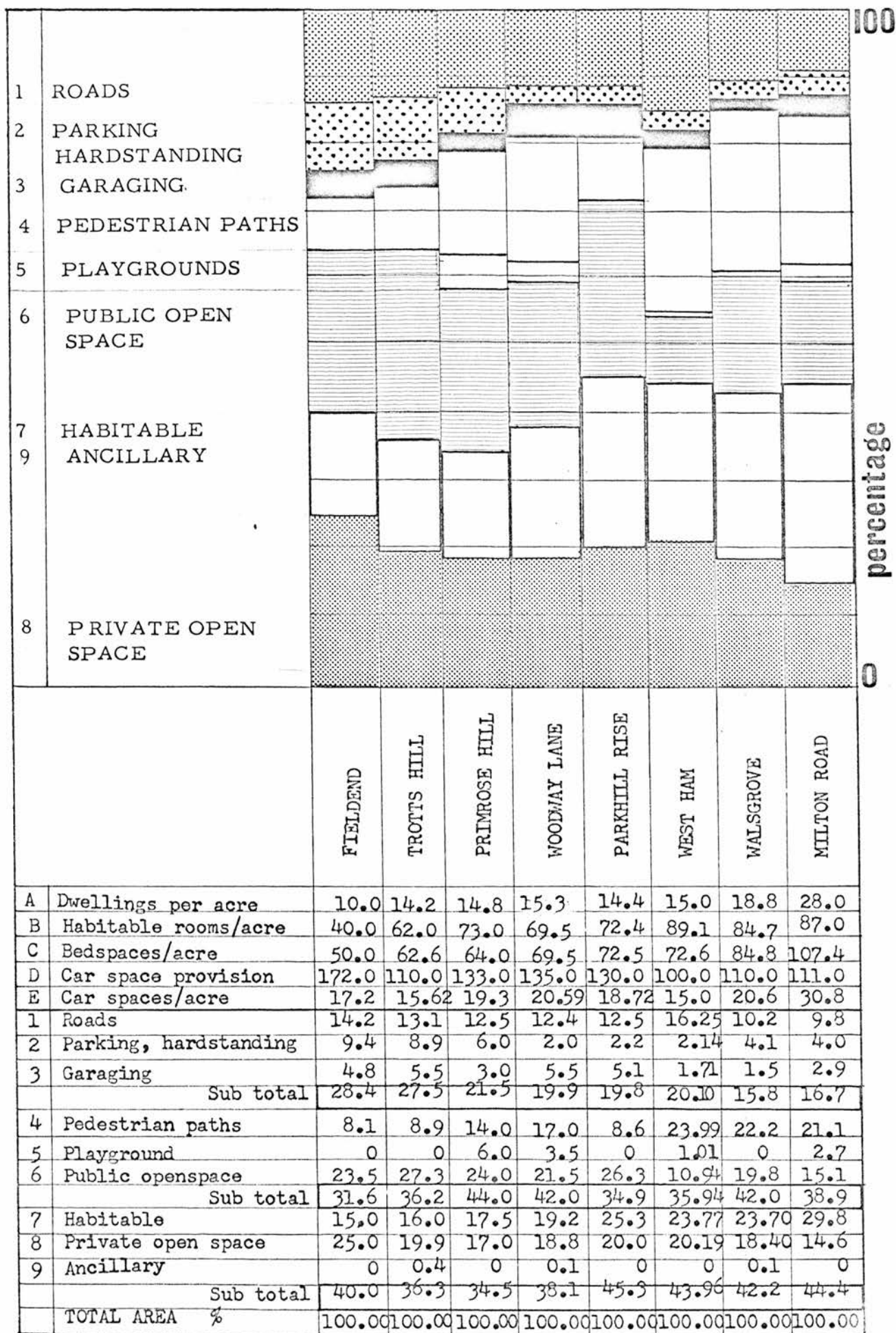


Figure 9.14 : Ground Area Analysis : Ground Areas as Percentage of Total Areas of Estates.

space, and habitable and private open space.

The percentage of site allocated for habitable and private open space varies between 34.5 and 45.3 per cent. The area of habitable space alone, steadily increases from 15 to 29.8 per cent. Apart from Fieldend private open space occupies from between 14.6 and 20.19 per cent. Private open space on Fieldend occupies 25 per cent which is higher than any of the single storey estates. On all eight estates, private open space consists of one enclosed garden. The proportion of ancillary area is nil on five estates and negligible on the others.

The combined areas of public open space, playgrounds and pedestrian paths occupy between 31.6 and 44.0 per cent. Of the total area the pedestrian paths occupy between 8.1 and 23.99 per cent and do not relate to any variation in density. The five estates with the lowest density have combined percentages for playground and public open space which are very similar. These range from 23.5 to 27.30 per cent. The three estates with the highest density have a proportionally lower area occupied by these functions. These range from 11.95 to 19.8 per cent. Unlike the single storey estates the proportion of site occupied by both playground and public open space do not relate to density variations. The proportion of the sites occupied by roads, parking and garages generally decreases from 28.4 per cent to 15.8 per cent as the density increases. The proportion of site area occupied solely by roads is highest at West Ham (16.25 per cent) and lowest at Milton Road (9.8 per cent). Garages range from 1.5 per cent of the site area at West Ham to 9.4 per cent at Fieldend. Parking

ranges from 2.14 per cent at West Ham to 9.4 per cent at Fieldend.

The proportion of the site occupied by both garages and parking relates closely to the general provision of car spaces within the estates.

9.4 SUMMARY

The results of appraisal and measurement of these eight estates show a number of similarities with the estates examined in the first case study.

The proportion of each estate occupied by the constant rates identified earlier (i.e. habitable, roads, parking, garages) remains similar at between 39 and 47 per cent of the total site. The distribution within these constant rates displays a slight variance. As one would expect with estates of predominantly two storey houses the habitable area at ground level is less than in the single storey schemes. The total habitable area per bedspace is however generally higher than for single storey estates. The proportion of the site occupied by roads, parking and garages is therefore slightly higher than in the single storey estates. Car provision is better than in the first study and the percentage of site occupied by parking and garages reflect this. The proportion on all sites occupied by ancillary accommodation and playgrounds again proved to be negligible.

The remaining 53 to 61 per cent of site area is therefore distributed between three land use functions, namely, public open space, private open space and pedestrian ways. The provision of private open space, in the form of gardens and courtyards, occupies a higher proportion of the site than in the single storey schemes. The two private estates devote 20 and 25 per cent of the total site area to this function.

Milton Road, with a density of 107 bedspaces per acre, has the lowest private open space provision of all the estates in the first two case studies, which at 59 square feet per bedspace is considerably less than the rate at the next highest density estate of Walsgrove. Whilst the combined areas of pedestrian and public open space account for a fairly consistent proportion of all estates, the distribution between each differs. The lower density schemes generally have a high public open space provision by comparison to pedestrian paths. This is reversed in the high density estates.

What then are the main differences between estates from different design situations? The estate with the lowest density, Fieldend, had the highest provision per bedspace for habitable areas, private open space and public open space. It also succeeded in providing a high car space provision which include individual access to each house. Parkhill Rise on the other hand with one exception conformed to the general distribution and provision of the public sector estates of similar densities. The exception is a high habitable area rate per bedspace. Trotts Hill, Primrose Hill, Woodway Lane and West Ham are similar to each other in distribution and provision. As mentioned previously these were all similar to Parkhill Rise. The other public sector estate was unique in its distribution and provision of space, which was expected of a low rise scheme with a density of 107 bedspaces per acre. In particular the provision of private and public open space is minimal. The size of the estate and the existence of peripheral roads reduces the amount of site area required for roads (the lowest on all estates). It is

probable that this scheme is unique and could only be reproduced under similar site conditions.

The Housing Society scheme, Walsgrove, displays different space provision and distribution to all the other estates. It has one of the highest provisions of pedestrian paths, at 113 square feet per bedspace, and one of the lowest private open space rates at 95 square feet per bedspace. In addition the provision in space for the car is the second lowest recorded. The density is however the second highest of all the estates.

CHAPTER 10 : THE RELATIONSHIP OF LAND USE DISTRIBUTION AND USER SATISFACTION IN HOUSING LAYOUTS

The first two case studies have demonstrated how space distribution in housing estates can be assessed using part 5 of the measurement and appraisal form. Widely differing approaches to building form and land use are apparent when looking at these estates, and the availability of comparative data and comment on this single aspect of housing layout alone would be a useful aid to designers who are faced with a similar problem. However, whilst the differing distribution of space within estates gives an indication of some of the priorities adopted by the designer the actual quality of housing is not a simple derivative of these physical areas. The relationship between these spatial characteristics and the extent to which the requirements of the occupants is met is the factor upon which the ultimate success or quality of housing estates will depend. The measurement and appraisal of this user satisfaction and its relationship to spatial characteristics of estates is therefore the subject of this final case study.

10.1 SOCIAL SURVEYS AND DIRECT OBSERVATION TECHNIQUES

In the eighty years since Charles Booth first set in process the 'Survey of London Life and Labour' the techniques of social survey have become well established. Indeed the systematic collection of facts about the way people live and behave as a preliminary to policy and action has become a distinctive British approach to social improvement. The past fifteen years, in particular, has seen a tremendous extension in the use of surveys in the pursuit of knowledge about the conditions under which people live, and what they think about these conditions.

Architects' growing recognition of the relationship between their work and research enquiries into social behaviour is clearly evident. The 1967 R.I.B.A. conference at Brighton¹³⁶ was preoccupied with social considerations in housing design and speakers constantly reiterated appeals for research based information. The conviction that the superiority of local authority over private housing has stemmed from user research has been recorded; as Lewis¹³⁷ put it the advantage has accrued from finding out not what people 'wanted' but what they 'wanted to do'. The need for help from social scientists and for training architects for user requirements studies has been emphasised by Cox¹³⁸. In a survey recently carried out into 'the human consequences of building design decisions', Manning¹³⁹ remarked on the 'little research being done into what we require of our major building types and especially the effect these buildings will have upon human beings.' Questions of social relationships and their probable significance for designers have been prominent among the issues analysed in reports of research carried out under his direction.¹⁴⁰ In a framework for research outlined by Markus¹⁴¹ a conceptual model of environment/activity objectives is described which include such social considerations as 'informal activity' and 'morale'. The necessity for 'solid information from sociological research'¹⁴² has been stated by Llewelyn-Davies¹⁴³ and a review of the plan for Washington New Town produced in his office indicated how social behavioural factors had been anticipated in the town layout.

Within the context of the appraisal and measurement form, the social survey is seen as the technique which would give the deepest insight into user satisfaction. Whilst achieving this level of understanding of user satisfaction the length of time¹ involved in the execution of a social survey is not conducive to a high rate of sampling of estates. This is reflected in the small number of social surveys carried out on housing estates each year. Inevitably the more time that any technique takes makes its own findings more out of date when they are published. It is therefore proposed that three levels of investigation in user satisfaction be employed, that relate to the Housing Intelligence Bank structure (See Figure 10.1). The most complex level would be the social survey in depth, the form of which is seen as being a development of the surveys carried out by the Ministry of housing and local government¹⁴⁴ and the University of Edinburgh Architecture Research Unit.¹⁴⁵ Conversely the elementary level would be the application of a check list at the desk appraisal and measurement stage. The check list would derive from the knowledge obtained from the surveys in depth and would change as living patterns and standards develop. This check list is contained, as section nine, in the appraisal and measurement form included as Appendix 1.

The third level, the intermediary between the two extremes described previously, is the method developed and demonstrated in this third and last case study. This method employs techniques of direct observation of housing estates, which are linked to more subjective data obtained

1. For example the time of ten months for a social survey of 3 Wates estates was claimed by its authors as being a short time.

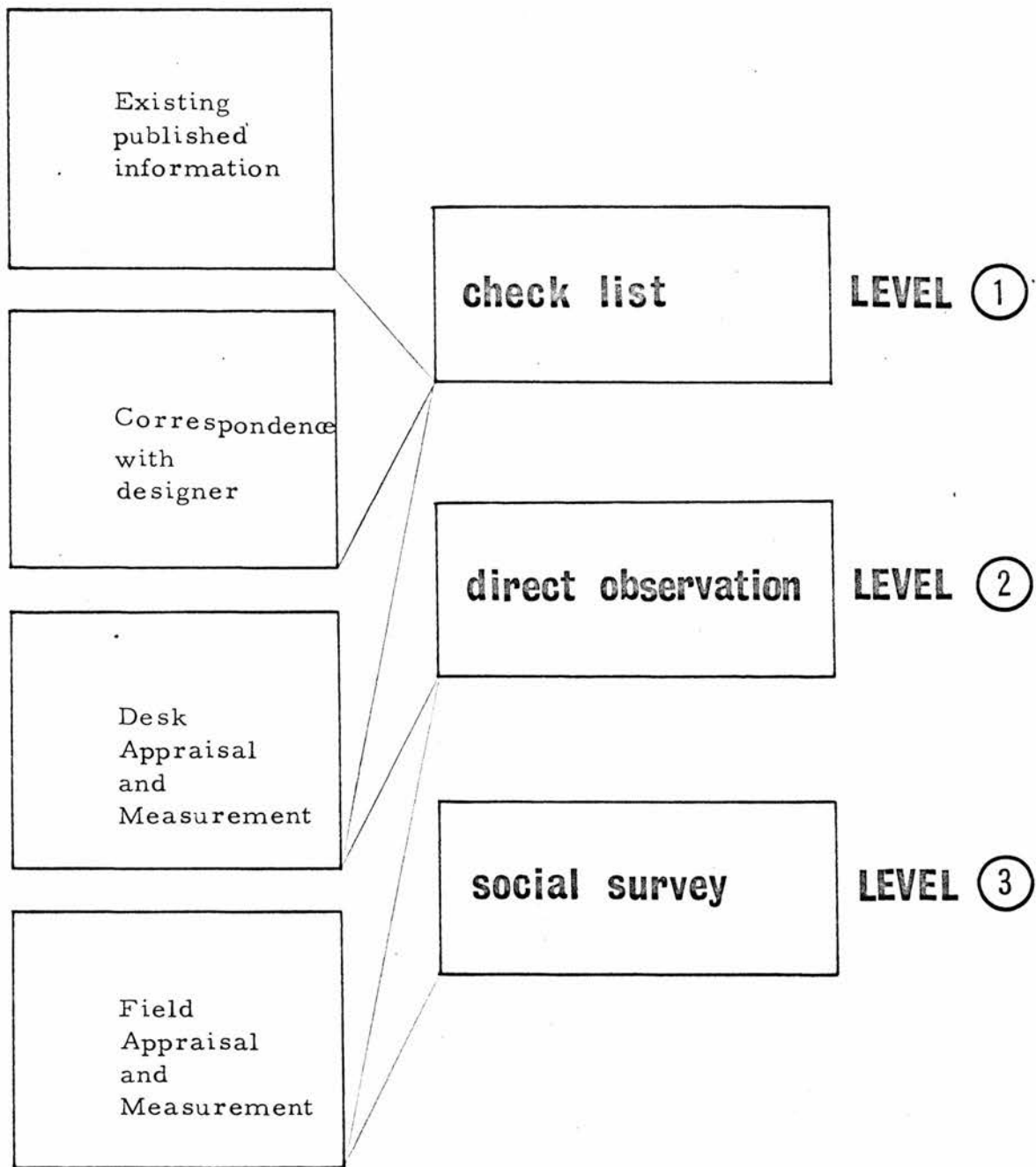


Figure 10.1 : Proposed levels of appraisal of user satisfaction.

from interviews of occupants and other users. The potential of this method of enquiry into user satisfaction was drawn attention
146
to by Dick during a discussion of user needs in housing. He pointed out that surveys could provide information about users' opinions and their own accounts of experiences and activities but that details of the frequency, duration and pattern of the users' behaviour could also offer useful guidance to the designer. He goes on to say 'objective data of this type can best be obtained by direct observation, since the users' own estimate of time spent performing a task, or sequence of a given series of activities is not an accurate measure.' Direct observation would appear to offer a relevant and potentially useful technique for examining patterned social behaviour in housing estates and it is a procedure that could be widely employed by designers who wish to examine the functioning of their work.

10.2 A COMPARATIVE STUDY OF TRAFFIC SEPARATED HOUSING LAYOUTS

The principle objective of this study is to demonstrate the technique of direct observation, as a method of evaluating user reaction to certain aspects of living in housing estates. The aspects selected for study derive from the previous two case studies. In these studies it has been shown that the rate of provision for the car, coupled with its relationship to the dwelling are a major influence in the distribution of space within a housing layout. Four estates have therefore been selected for study which have been designed by a new town development corporation over the past ten years. In particular the estates represent one design organisation's changing philosophy towards the conflict of the provision

for car and pedestrian within housing estates. A secondary objective is therefore to contribute to an assessment of the overall benefits of traffic separation within housing estates.

Method of study

The study combines the measurement and appraisal of the spatial characteristics of four housing estates with the activities and reactions of users obtained by direct observation and interview. In addition to the occupants of houses, interviews were conducted with the staff of the Development Corporation and the Urban District Council. People involved in the estates in a service role (postmen, fire brigade, police, tradesmen, refuse collectors, doctors, etc.) were also interviewed.

a) Desk appraisal and measurement.

Desk appraisal and measurement was carried out on representative parts of the four selected estates, using part 5 of the form. A comparative analysis of the land use distribution was then obtained in a similar manner to the first two case studies.

b) Direct observation and interview.

In order to gain a representative picture of the usage and activity taking place on the estates systematic observations and interviews were carried out. The results were recorded on the following schedules :

OBSERVATION SCHEDULES

1.0 Roads, Garages, Parking

2.0 Pedestrian Ways

3.0 Gardens

4.0 Play Areas

5.0 Public Open Space

6.0 Schools

7.0 Shops

8.0 Public Transport

INTERVIEW SCHEDULES

9.0 Tenants

10.0 Design/Client Organisation

11.0 Design/Client Objectives

12.0 Housing Manager

13.0 Tradesmen

14.0 Postmen

15.0 Fire Officer

16.0 Miscellaneous

The observations took place over two weeks of mixed weather in May, and consisted of unvarying walkrounds at fixed intervals during the day. The observations commenced at 9.00 hours continuing until 19.30 hours. In addition to the walk rounds more specific observations were carried out in relation to the use of schools, shops, buses, overnight parking etc. The observations continued through one weekend. Two factors influenced the daily timetable of observations; the first was the onset of physical exhaustion and the second the variable weather conditions experienced. Observations were made on standard daily record sheets and plans which in turn were transferred to schedules. Observers noted the location of all sightings, and also the category of the sighting, whether adult, adult with pram, children (in three age groups),

car, service vehicle, bicycle, etc. No attempt was made to record the detailed nature of the activity being carried out or the sex of the people observed. A record of weather conditions was also kept. In practice the observation walk rounds were generally divided into two parts, vehicular and pedestrian.

Interviews with tenants, service and trades people were also carried out as and when opportunity arose. These were generally of an informal nature although interview schedules were used. Interviews were also carried out with members of the Development Corporation and the Urban District Council staff.

The Estates

As a first step in the study seven estates within Stevenage were visited and interviews and observations made to determine which schemes could be most usefully studied. In selecting the final four estates it seemed desirable that within the time limit and terms of reference imposed as wide a variety of estates as possible should be chosen. For the purpose of the study it was also necessary to select estates in which people had had time to settle down. The four estates finally selected were :

CAMPSHILL, CHELLS (Figure 10.3)

This is the oldest estate selected being completed in 1963. The total area of the site is 71.17 and it contains 761 dwellings in terraces of two storey houses and flats. The site is served by loop roads off Chells Way and garages are provided off these

roads in vehicular courts. The estate was selected as being the most recent traditional 'non-separated' layout in Stevenage.

SISHES END, PIN GREEN (Figure 10.4)

This estate was completed in 1964 and has the reputation for being one of the most attractive layouts in Stevenage. The total area of the site is 35.90 acres and it contains 468 dwellings in terraces of two storey houses and flats. The site is served by a network of long culs de sac, along which are groups of garages. Pedestrian traffic is separated from these roads.

FAIRLANDS, PIN GREEN (Figure 10.5)

This estate was completed in 1965 and consists of two and three storey houses, and two storey flats. It is 86.50 acres and contains a total of 789 dwellings. The site is divided by a through road, Archer Road, with short culs de sac off this containing groups of garages. It was selected as being an example of a layout which combines the problems of pedestrian separation with the necessity of a through road.

TROTTS HILL, PIN GREEN (Figure 10.6)

This was the last estate completed in the Pin Green neighbourhood of Stevenage. The area of the site is 61.71 acres containing a total of 809 dwellings. It consists of two and three storey houses and flats with some sites reserved for the future construction of medium rise flats. The layout is served by loop roads with short culs de sac, the majority of dwellings have individual garages off

these, within the curtilage of the house plot. In addition, movement between culs de sac and pedestrian ways has been forcibly prevented by the positioning of fences.

Dwelling Type	Campshill	Sishes End	Fairlands	Trotts Hill
2 bedroom houses	150	57	139	
3 bedroom houses	540	280	355	559
4 bedroom houses	39	10	93	90
5 bedroom houses	6			
1 bedroom flats	26	120	196	160
3 bedroom flats		1		
3 bedroom maisonettes			6	
TOTAL	761	468	789	809

Figure 10.2 : Dwelling Types on the Four Estates.

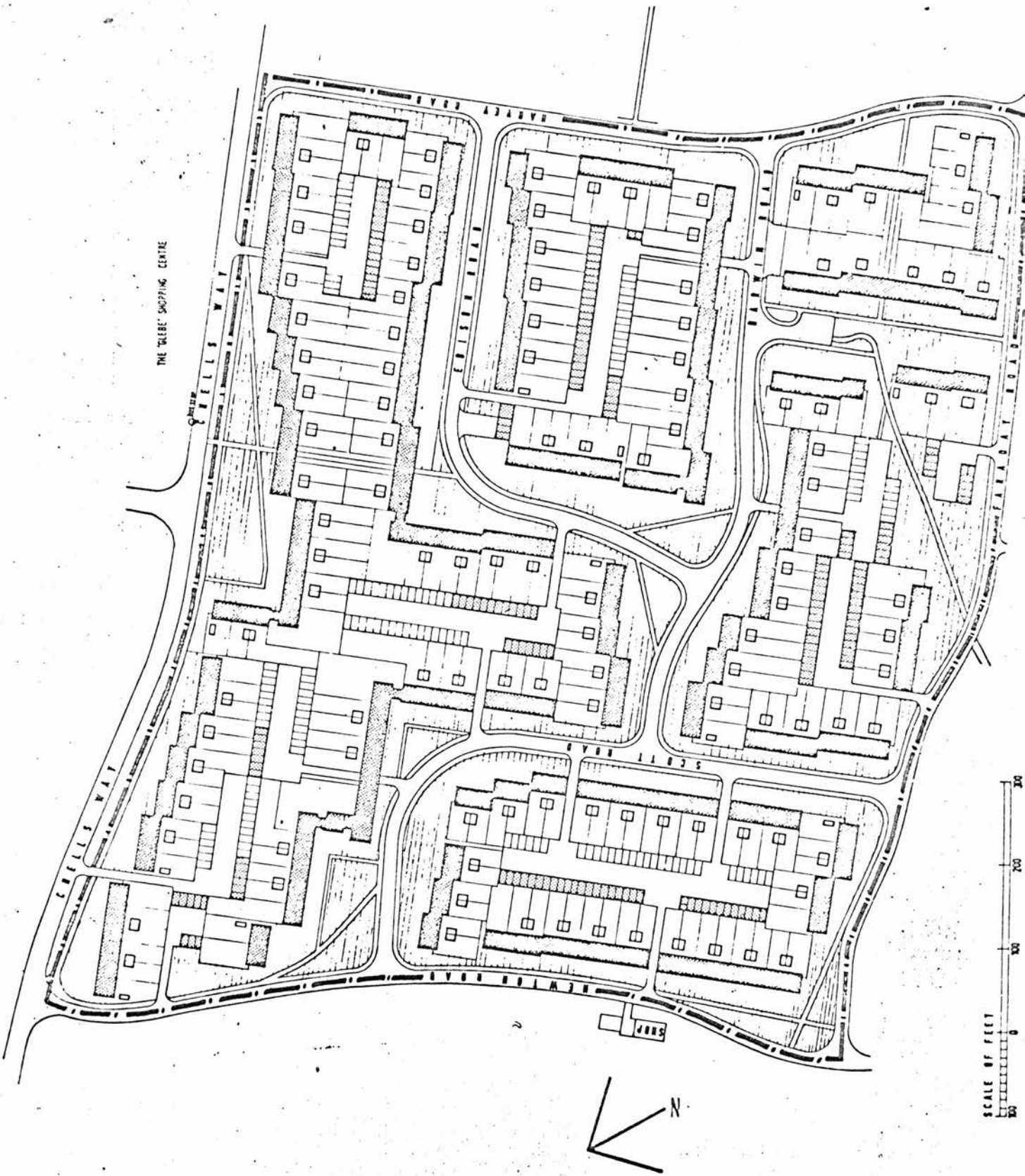


Figure 10.3 : Layout of Campshill.

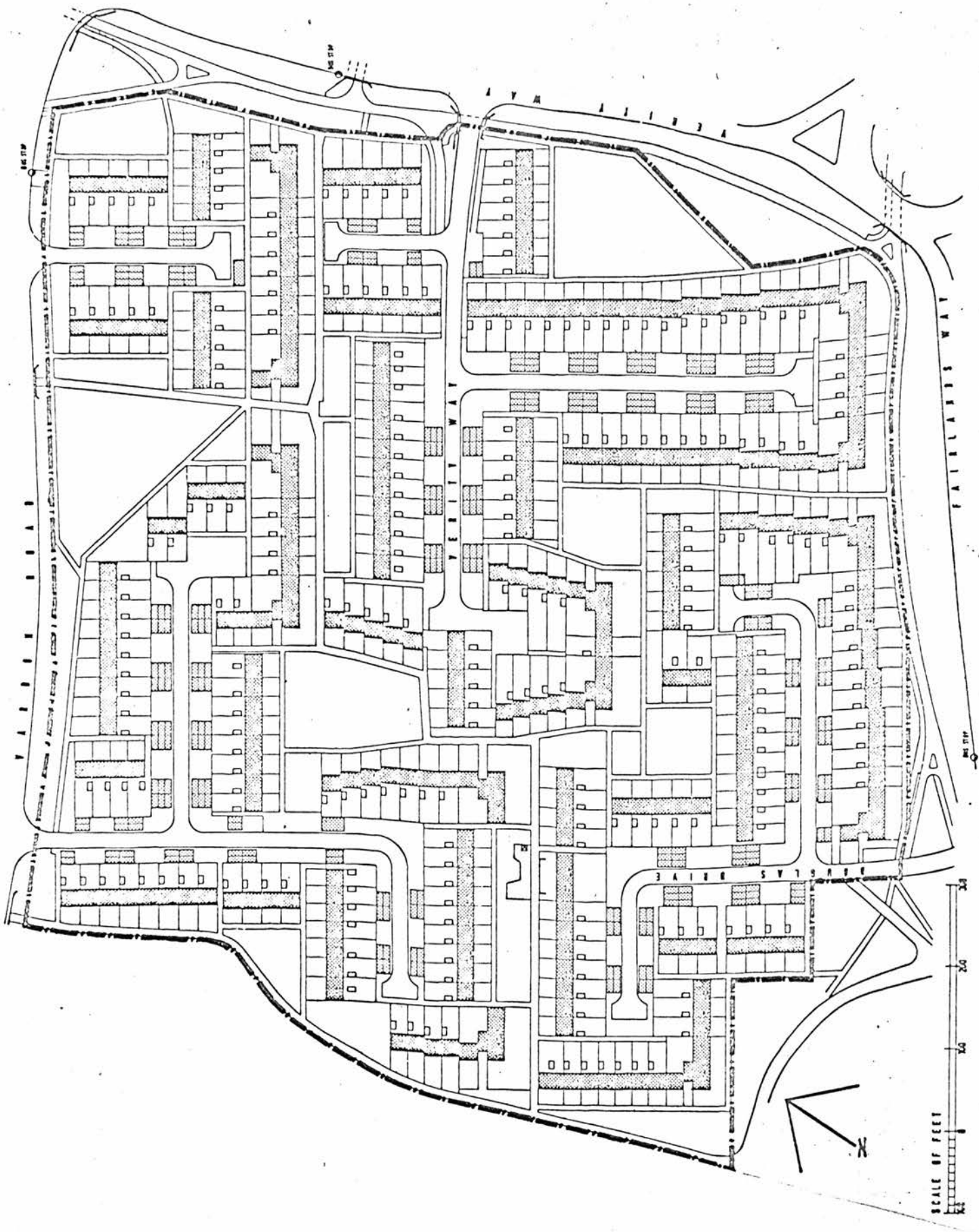


Figure 10.4 : Layout of Sishes End.

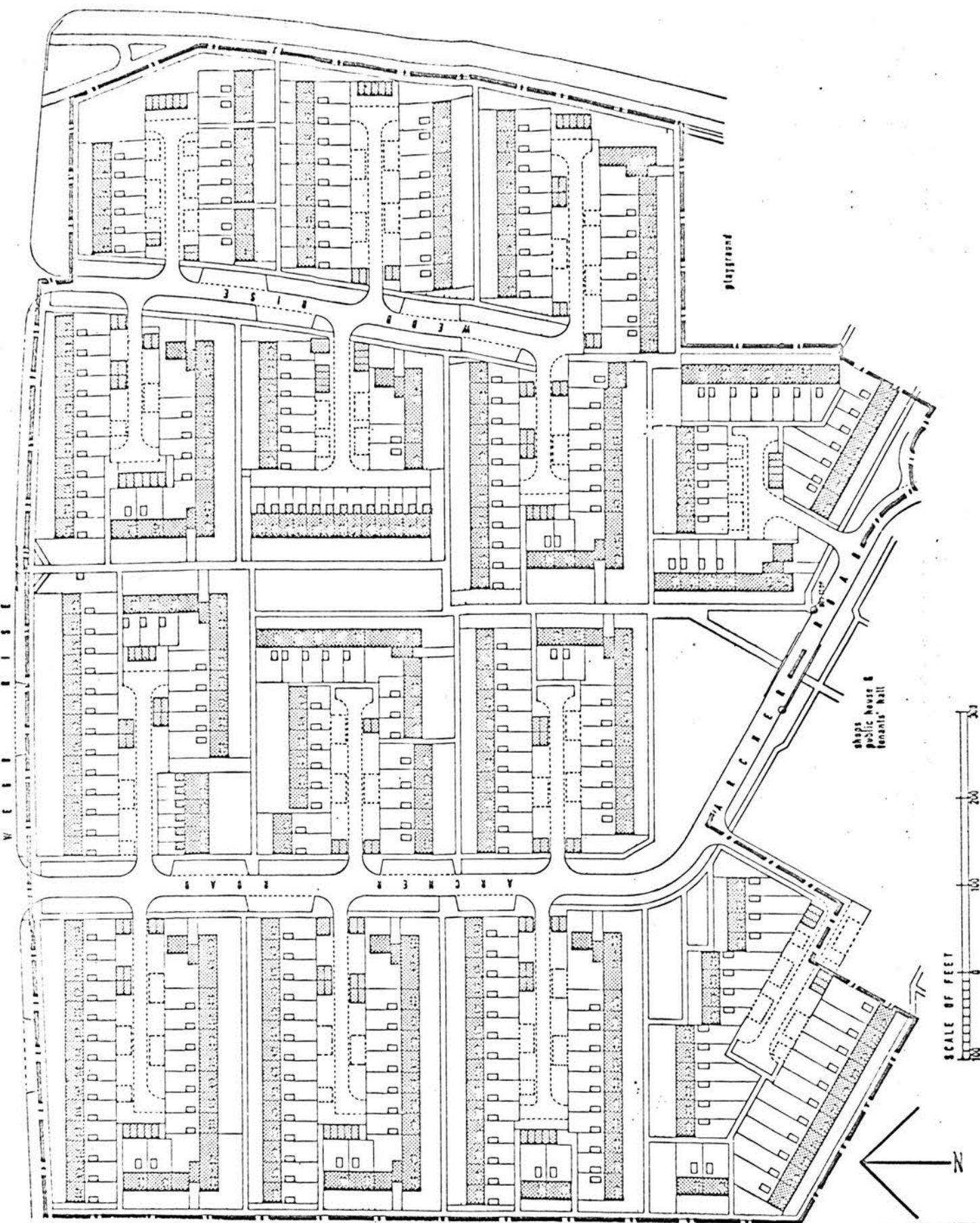


Figure 10.5 : Layout of Fairlands.

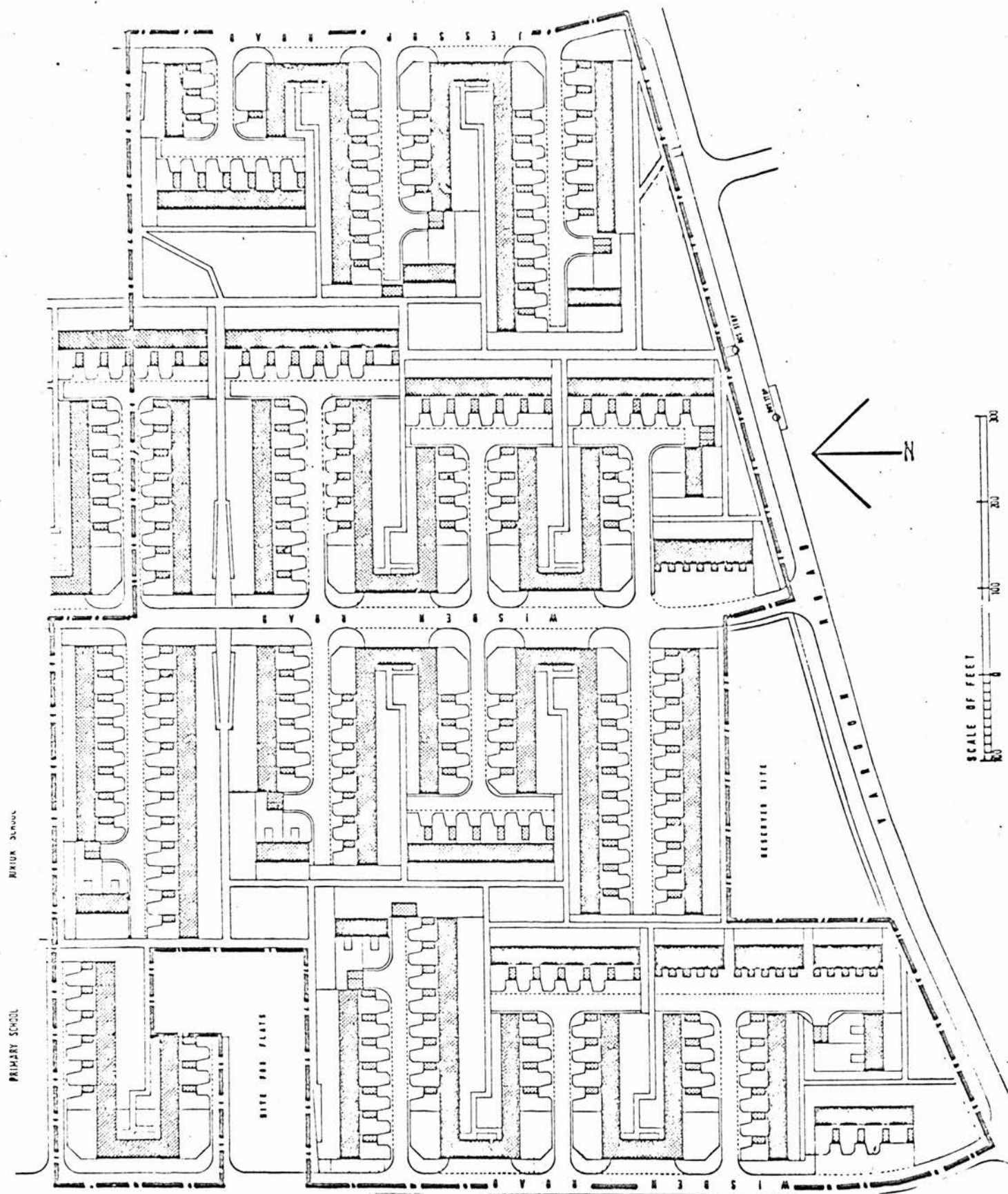


Figure 10.6 : Layout of Trotts Hill.

10.3 THE DESK ANALYSIS

This section is concerned with the space standards of the overall estate layout, and their effect upon the achievement of a satisfactory balance as demands change and conflict in the housing areas. The standards under consideration relate to the allocation of space within the layout (external to the dwelling), and to convenience in the arrangement of dwellings to one another and to their shared facilities. The first aim of this desk appraisal and measurement has been to establish the actual areas devoted to certain categories of use in the four selected layouts. Fairlands, Sishes End and Trotts Hill, taken collectively, present a great departure in layout principle to that adopted for Campshill. The desk appraisal and measurement establishes the general change in allocation of space. The second aim has been to demonstrate the range of differences in standards achieved between the three separated layouts, each of which differs from the others in detail design.

A fully representative section of each estate was taken, each theoretically capable of existing as an entity, and roughly equal in area. Balance was achieved by adjusting the boundary of each section so that no section contained areas of use not also included within the others; for example a disproportionate area of boundary road or cycle track. The areas examined are illustrated in Figures 10.3, 10.4, 10.5 and 10.6.

The Comparative Analysis

This section describes certain features of the four layouts in order to draw attention to similarities and differences which have a bearing on the comparative analysis.

Almost 60 per cent of the dwellings in Campshill, Fairlands and Sishes End are for families of five to eight persons, with the five person dwellings largely predominating. This proportion rises to 75 per cent in Trotts Hill, where the remaining accommodation is solely in flats for one and two persons, two-thirds of which are at first floor level with garages under. Flats at ground and first floor level for one and two persons account for 25 per cent of the dwellings at Fairlands, almost 30 per cent at Sishes End, and only 8 per cent at Campshill. The majority of dwellings are two storeys high, but there are 22 three storey, six person houses at Trotts Hill (seven per cent of the total), and 19 at Fairlands (five per cent of the total).

Campshill site falls gently to the south and the layout has taken account of some mature trees and an existing lane, which now forms a cycleway. Fairlands and Sishes End sites fall in a south-easterly direction, quite steeply at Sishes End, where changes of level and retaining walls have been required, and existing tree belts carefully considered. Trotts Hill site is relatively featureless with a fall to the west and north.

Provision for cars varies widely, and is expressed here as a percentage of the total number of dwellings.

Figure 10.7 : Standard of provision for cars.

ESTATE	GARAGING		CASUAL PARKING Proposed total
	Built	Proposed total	
Campshill	62%	112.5% ¹	7% ²
Fairlands	41%	84%	35% ²
Sishes End	87%	87%	19.7% ²
Trotts Hill	100%	100%	10.3% ²

N. B. 1. A proportion of these are intended for dwellings in immediately adjacent areas.

2. Garage hardstandings are not included.

Analysis of Areas per Bedspace

An analysis of areas per bedspace for each estate is presented graphically in Figure 10.8. An analysis of Woodway Lane is included for comparison. The overall area of estate per bedspace reduces from 772 square feet at Sishes End (56.4 bedspaces per acre) to 696 square feet at Trotts Hill (62.7 bedspaces per acre) where car provision is high. The density at Campshill is 58.7 bedspaces per acre (743 square feet per bedspace), higher than at Sishes End, even though almost two dwellings per acre less are provided.

The habitable area per person remains relatively constant at 190 - 214 square feet, although the effect of the Parker Morris recommendations has resulted in predominantly higher areas in newer estates. The area of ancillary accommodation varies little from estate to estate, and is at all times insignificant in relation to overall areas.

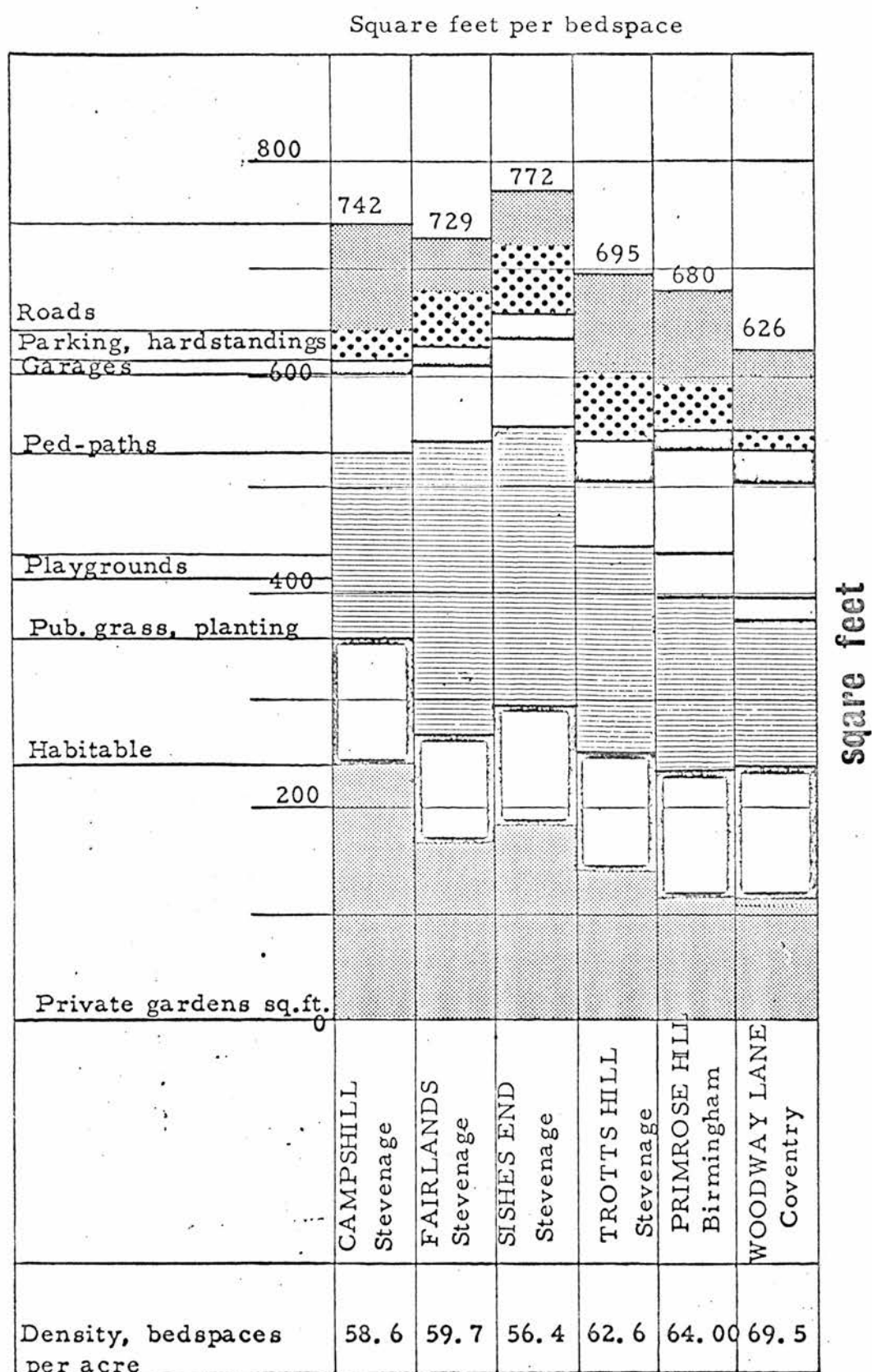


Figure 10.8 : Analysis of Areas per Bedspace

The area of private open space per bedspace varies widely from 241 square feet at Campshill to 138 square feet at Trotts Hill, but a constant shift with increased density is not apparent.

Provision of public open space also varies, from 259 square feet per bedspace at Sishes End to 172 square feet per bedspace at Campshill. A direct comparison of designed play areas is not possible, but an examination of the whole of each estate shows that neither Sishes End nor Campshill estates contain a specific play area within them. Trotts Hill and Fairlands estates both have designated play areas, but no equipment is provided, and the detailed layout at Trotts Hill prevents any vigorous games. The maximum distance from dwelling to play area at Trotts Hill is as much as 550 yards, and 350 yards at Fairlands.

Trotts Hill, at 62 square feet has the lowest area of paved pedestrian ways per bedspace. This level increases a little to a maximum of 80 square feet at Sishes End. Footpaths at Campshill comprise 71 square feet per bedspace. The increased densities do not give a clear indication of a general reduction in paved ways, but it appears that this is in fact the case.

The area of road per bedspace at Campshill (100 square feet) and Trotts Hill (91 square feet) is approximately twice that at the other two estates. The area for garaging and parking

at Trotts Hill is 100 square feet per bedspace. Sishes End has slightly less, but the figure drops considerably to 40 square feet per bedspace at Campshill.

Analysis of Distribution of Site Area

An analysis of areas, expressed as a percentage of the site area, for each estate is shown in Figure 10.9. The categories of use can be divided broadly into three main groups : roads and car space, public open space, and habitable and private open space. Figure 10.9 also gives the detailed area breakdown and includes details of Woodway Lane, from which a comparison may be drawn.

The total space provided for vehicular use varies little between Campshill (19 per cent), Fairlands (17 per cent) and Sishes End (18 per cent), but comprises 28 per cent of the site area at Trotts Hill. It is significant however that in both Campshill and Trotts Hill, where every dwelling has a road frontage, 13 per cent of the site is devoted solely to roads. This is twice as much as at Fairlands and Sishes End where a proportion of the dwellings have no direct road access. Trotts Hill has almost three times as much area devoted to car parking and garaging as Campshill, and at both Fairlands and Sishes End the figure is almost double that at Campshill.

Fairlands and Sishes End have a higher percentage of open space than Campshill and Trotts Hill, where both large gardens

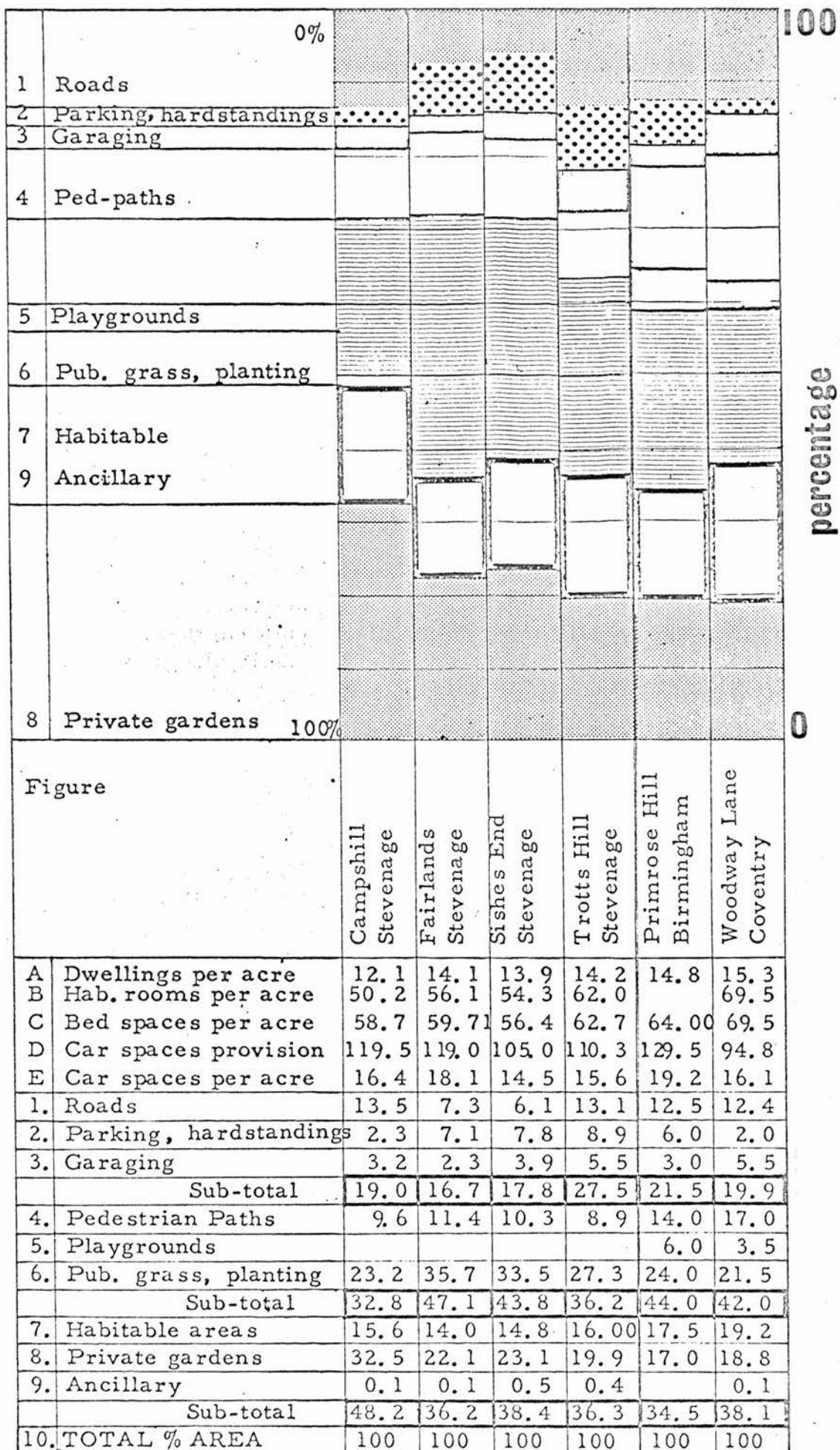


Figure 10.9 : Ground Area Analysis : Ground Areas as Percentage of Total Areas of Estates.

and high vehicle space provision combine to reduce the area of open space to 33 to 36 per cent. Whilst hard paving remains fairly uniform throughout, a marked reduction in the grassed and planted areas is also noticeable at Campshill. A comparative assessment of special play areas is not possible for reasons discussed earlier.

Site area required for habitable accommodation at ground level varies very little as the density increases, although the total habitable area, including first floor flats, increases uniformly with density, as would be expected. Ancillary accommodation forms an insignificant section of the total site areas. Private gardens in the separated layouts occupy 20 to 22 per cent of the site areas. This is only two-thirds of the area devoted to private gardens in the Campshill estate. It is significant that in Campshill, Fairlands and Sishes End estates the aggregate of public and private open space occupies 65 to 69 per cent of the site area, considerably more than that at Trotts Hill (56 per cent). The increased space for vehicular use at Trotts Hill largely accounts for the difference.

Summary

Generally it can be seen from this analysis that in all four estates the area per bedspace required for habitable accommodation and for paved pedestrian ways remains relatively constant, whilst the combined areas required for private and public open spaces vary considerably, relative to the car provision. This is

particularly noticeable at Trotts Hill where the proportion of site for vehicular use is much higher than at the other estates. Similarly, as would be expected the proportion of site devoted to private open space drops as public open space increases. Through the measurement and appraisal of areas devoted to different categories of use the Desk Analysis allows some insight into the adoption of priorities in the design of a layout. As previously stated, housing designers have a well defined set of standards for the internal arrangement and space requirements for the constituent parts of the house, but no such clear guide exists to assist in the design formulation of an estate layout. Largely empirical values are used to apportion the available space. The lack of this guide becomes more apparent when efforts to perceive and satisfy changing requirements result in radically new layout solutions. The need for areas where children can play safely has been brought about by the increase in ownership and usage of the private car. Better understanding of needs or requirements such as these is necessary to provide criteria for the designer. This Desk Analysis demonstrates the diversity of values and standards which the designers of each of the separated estates adopted for the various functions to be satisfied. It is the purpose of the following section to seek some guidance as to the form of specific design criteria, by relating tenant use and satisfaction levels to the physical standards discussed.

10.4 SITE OBSERVATIONS AND INTERVIEWS

Vehicular access and circulation

The standard achieved within a housing layout depends to some extent on the success of the road hierarchy system.

1) Circulation.

Each of the four estates lies immediately adjacent to a district distributor road, and a common approach would then suppose that access to each layout would be via a local distributor carrying traffic generated solely by that layout, and leading finally to minor access roads specifically required to serve a particular group of dwellings. It follows that a local distributor carries more traffic and at consistently higher speeds than on an access road, where manoeuvring, parking, etc. are the major functions.

Both Trotts Hill and Fairlands layouts have a well defined road structure, where the access roads are narrow, short culs de sac, each serving 20 to 30 dwellings. Few dwellings front on to the wide local distributors. Campshill and Sishes End layouts both differ radically from this hierarchial approach. Campshill, where every dwelling fronts on to the looped road system, inevitably requires any road within the layout to serve, to a greater or lesser degree, as a local distributor; examples of this being Newton Road and Harvey Road. At Sishes End a very high proportion of dwellings back on to the long culs de sac which serve from 90 to 117 dwellings, forcing the access roads to function in part as local distributors, and vice versa. The 1966 Stevenage Traffic Survey¹⁴⁷ demonstrates the fact that Fairlands access culs de sac carry only 150 to 200 vehicles on a typical weekday; compared with 220 to 350 vehicles on the lesser, and up to 1,350 vehicles on the major loop roads in Campshill.

At Campshill vehicular circulation was seen to be hampered by the combination of road width (16 feet only) and the fact that 56 per cent of

the parked cars were parked at the kerb side. Often long lengths of kerb were occupied by up to 15 cars parked in a row, preventing the free flow of two-way traffic. Generally low speeds were observed as a result of the road layout and the noted constrictions. This, coupled with the good sightlines at corners (except at entrances to garage compounds), gives a fair measure of safety. The continuous looped nature of the roads obviates lengthy reversing procedures. Large service vehicles often have to mount the kerbs in order to pass parked vehicles. The small radius corners to the narrow entrances to the garage compounds, and the adjacent garden walls require drivers to exercise great care, and there are ample signs of conflict between car bodies and brickwork. The low walls and shrubs at these entrances tend to obscure any possible view of toddlers passing along the pavement.

At Fairlands, Webb Rise and Archer Road give good free-flowing circulation to the estate traffic, and only three vehicles were observed parked on the roadway. Some vehicles did appear to speed along the straight sections, although the corners of Archer Road did help to reduce this tendency. It was noted, however, that vehicles travelling at even average speed tended to move over the centre of the road at these corners, and this was particularly dangerous where traffic was turning into the shopping centre car park. Entrance to culs de sac is easy, with good visibility, but the exit is less simple, and accidents could occur where pedestrians cross the entrances to culs de sac. The pavement is completely shielded from view by garage walls and drivers consistently remarked on the danger. High speeds in the culs de sac were not observed, despite comments by residents. Not all garages

are built at present, and parked cars present the major visibility hazard in the culs de sac. However some blocks of garages have been built directly opposite one another, giving reduced visibility for drivers, and increased danger to children. In many cases there are no pavements here to offer even limited protection. The positioning of car washing taps adjacent to the roadway, in some cases at the mouth of the cul de sac, increases the danger of accident at these points. A 27 foot long coal lorry was observed reversing the length of a cul de sac, to avoid performing a three point turn among the parked cars.

At Sishes End the long culs de sac enable high speeds to be achieved, particularly in Verity Way, Vardon Road and Douglas Drive. Vehicles were seen taking the Douglas Drive corner beside the shop on the wrong side of the road, where visibility is not commensurate with the speeds observed. As at Fairlands, the directly opposed blocks of garages constitute a perpetual 'blind corner' worry for drivers and housewives alike. No cars were observed parked on the surrounding distributor roads, though contractors' and school buses stopped at the entrances to Douglas Drive and Vardon Road culs de sac. Cars, vans and large lorries parked adjacent to garage gables obstructed free passage along the culs de sac on a number of occasions, and generally this was felt to be a result of the detailed parking arrangement in front of the garage doors. Vehicles were consistently parked in hammerheads, preventing the planned three point turn manoeuvre. Service lorries have difficulty, particularly at the southern hammerhead to the long Vardon Road cul de sac, and have to reverse 150 feet to the open corner before turning round.

The Trotts Hill layout, in common with Fairlands, gives clear unimpeded passage to vehicles on the distributor roads, and a total of only 19 cars were observed parked on these roads. Sight lines into and out of culs de sac are good, and it was observed that drivers leaving the culs de sac could do so with very little loss of speed when the major roads were clear of oncoming traffic. Of the observed parked cars 38.5 per cent were on the roads, and a very high proportion of these were in the culs de sac parked outside or adjacent to the garage forecourts. At no time in any cul de sac did this approach the real circulation hazard encountered at Campshill, and service vehicles generally had no trouble in turning round, except in the two culs de sac where no provision had been made for reversing procedures. Vehicles tended to travel rather fast along Jessop and Wisden Roads.

The Doctors' Surgery adjacent to Vardon Road caused one of the major traffic hazards observed during the survey. Up to ten cars were parked at the kerb side of Vardon Road, a district distributor, between 5.00 and 5.30 p.m., at a time when the road was at its busiest. The cars were parked opposite the junction of Vardon Road and Meredith Road and seriously disrupted traffic flow, especially when vehicles were turning right out of Vardon Road.

2) Parking.

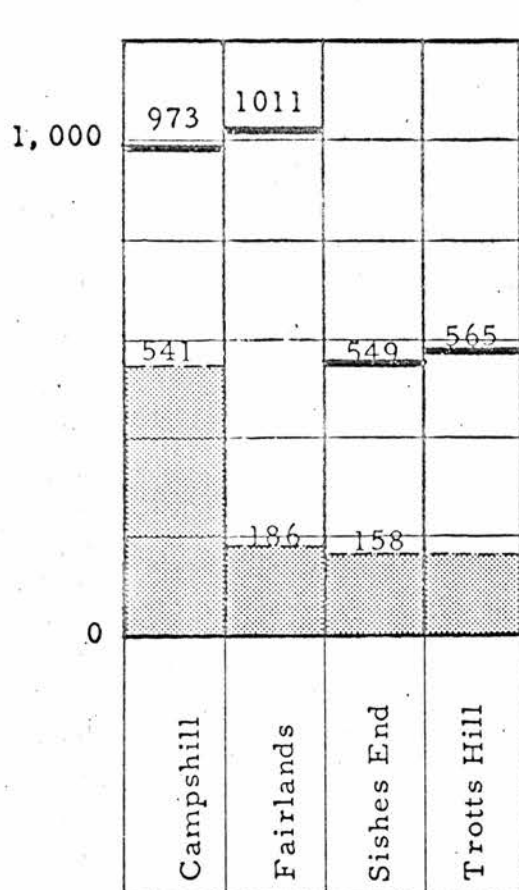
The proportion of garages actually built on each of the estates varies considerably, but the level of potential garage provision is consistent at around one garage space per dwelling. If the full garage provision designed for each of the layouts were to be constructed then the open

parking spaces provided in addition on the separated layouts would still be in excess of one space per dwelling, whilst at Campshill 280 dwellings would share only 11 spaces. The greater or lesser degree to which cars are parked in the parking spaces and open roads, or in the garages seems to depend on (a) the number of cars owned and the journey frequencies of the tenants in the estates, and (b) on the influence of the designed spaces in which to park. The observations made in relation to (b) recorded the total number of cars parked, and is shown as a total for each estate in Figure 10.10. The daily fluctuations in the level of parking are shown graphically in Figure 10.11. The aggregate positions of all observed parked cars, showing the comparative intensity of use in each estate are shown in Figures 10.12, 10.13, 10.14 and 10.15. The number of cars parked on the roadway is shown as a percentage of the total number of observed parked cars in Figure 10.16.

More than half the parked cars at Campshill were on the roads, far more than on any of the separated estates. In the three separated estates cars standing in the hammerheads of the culs de sac were included in the total of cars parked on the roads. But for these cars, the percentages of cars parked on roads in Sishes End and Trotts Hill would be considerably less.

3) Campshill - the traditional layout.

At Campshill a conflict occurs between parked cars and moving vehicles on the roads. Parking conventions are well established in localities where the density of parked cars is high, and a car could weave successfully between parked cars on alternate sides of the road even at



Note that at Sishes End and Trotts Hill, where there is a high garage provision, there is also a marked reduction in the number of cars parked in the open.

Figure 10.10
Total number of parked cars.
Observed on each estate.

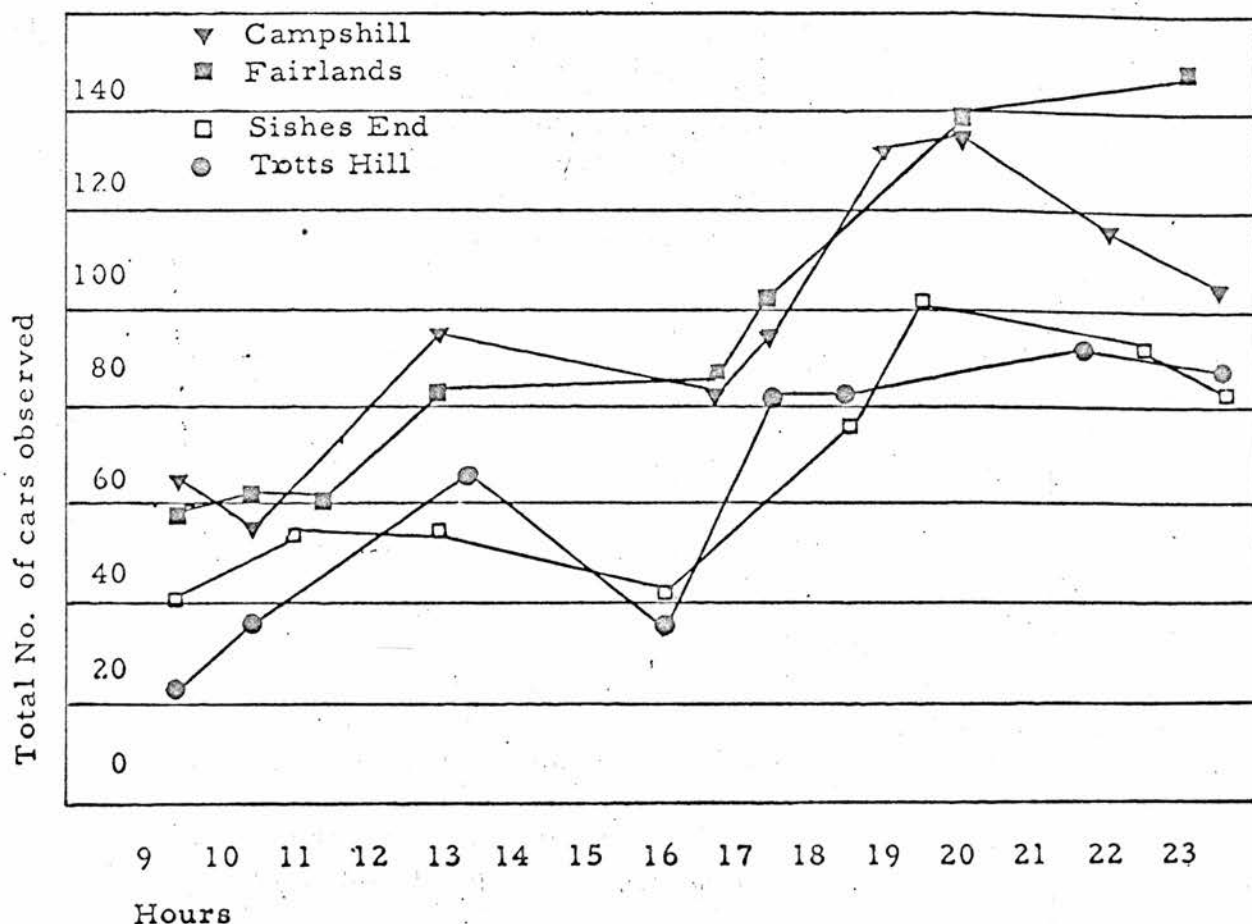


Figure 10.11
The average number of cars
parked in each estate
throughout the day

THE WARE'S SHOPPING CENTRE

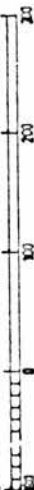
THIS PLAN SHOWS THE
POSITION OF PARKED VEHICLES
RECORDED DURING 11 COUNTS
— REPRESENTS ONE VEHICLE

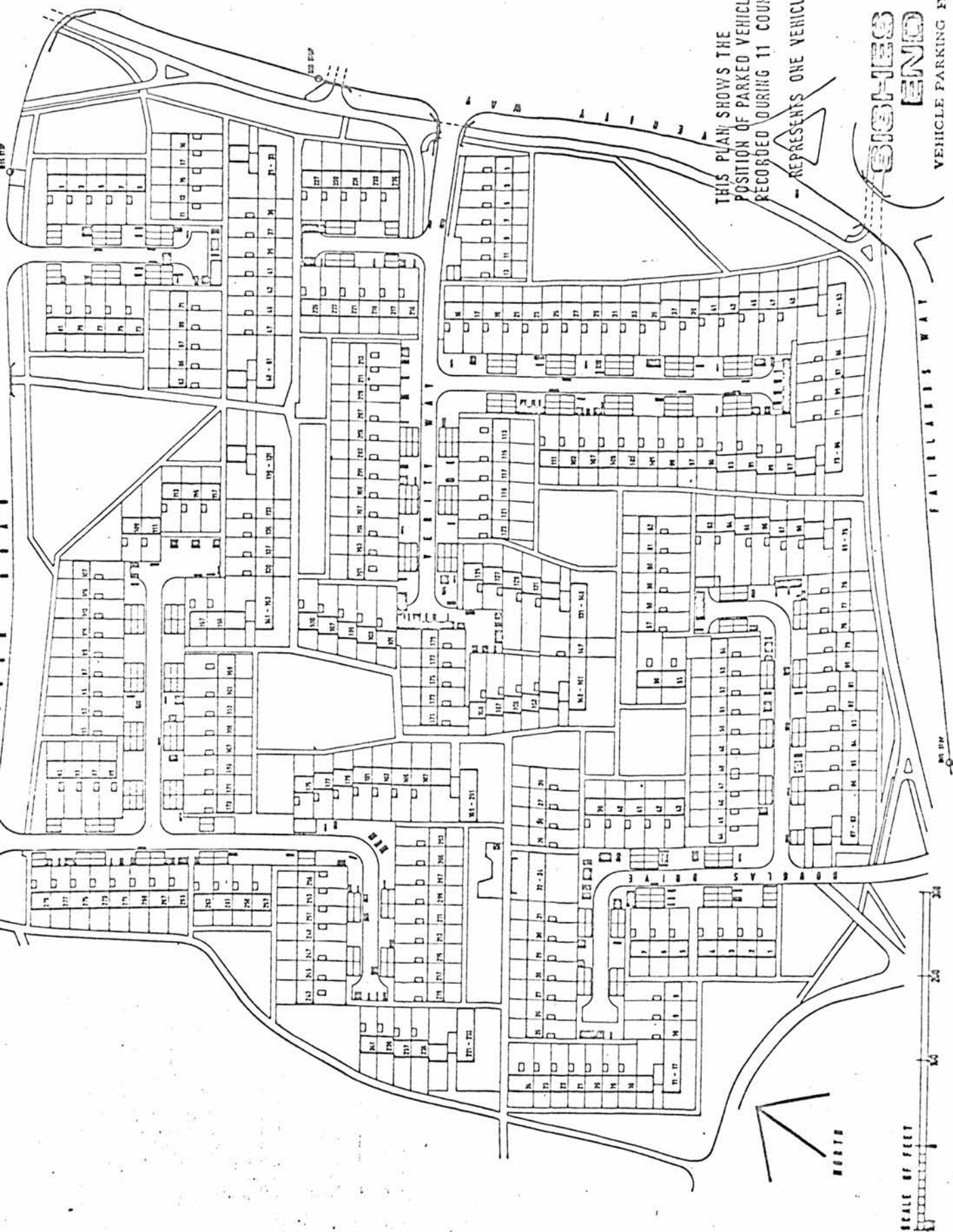
VEHICLE PARKING

Figure 10.12

CAMPBELL

SCALE OF FEET



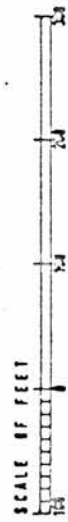




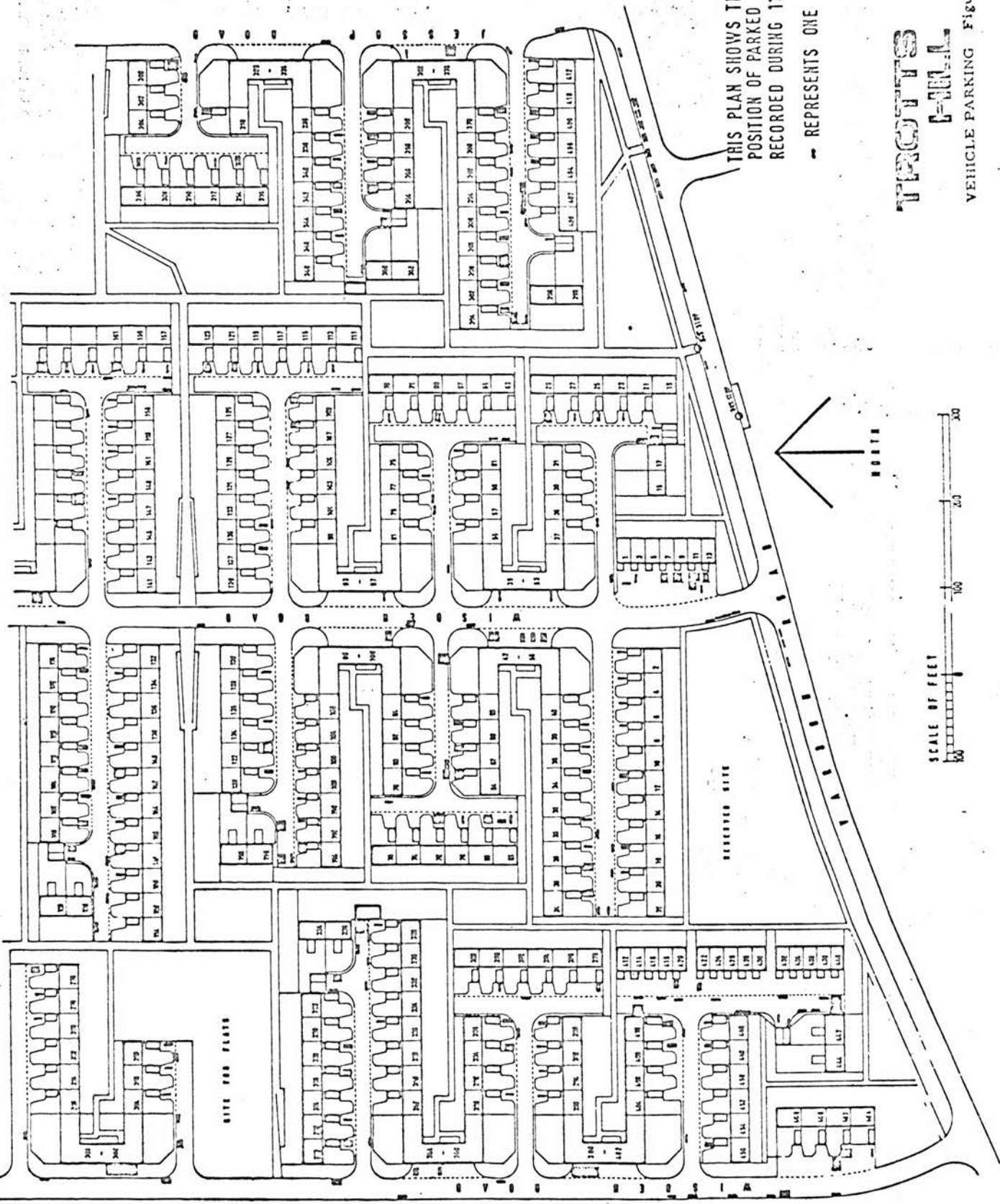
THIS PLAN SHOWS THE
POSITION OF PARKED VEHICLES
RECORDED DURING 11 COUNTS.
- REPRESENTS ONE VEHICLE

FAIRLANDS

VEHICLE PARKING Figure 10.14



NORTH



TRACTS
FULL

VEHICLE PARKING Figure 10.15

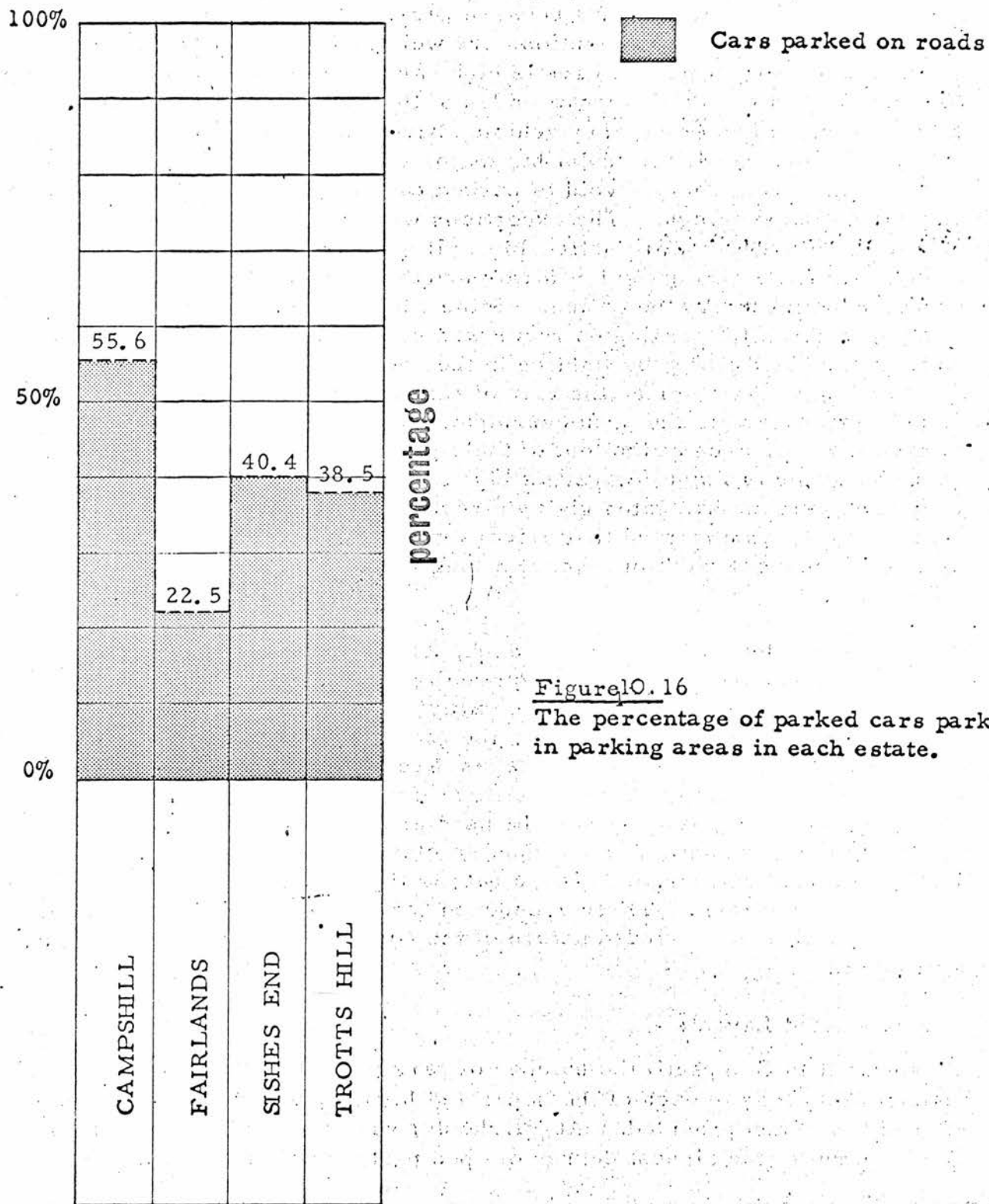


Figure 10.16

The percentage of parked cars parked in parking areas in each estate.

peak times. Larger service and emergency vehicles have difficulty and the driver of an ambulance made this his major criticism. The garage compounds were largely devoid of parked cars except at lunch times and during the evenings. The exceptions were two compounds off Chells Way, which were noticeably well used at all times, especially at night. Parking for the major length of Chells Way is prohibited, and this is well enforced by the police. Some compounds were almost deserted at night time, whilst parking on roads was consistently high. Car owners complained that poor lighting in the compounds, and the impossibility of casual supervision, made the fear of vandalism very real. A total of 115 cars parked in the open overnight. Some tenants were fortunate to have their garages at the foot of their gardens with a pass door connecting the two, and this gave a high level of satisfaction. Very few gardens had gates opening directly into a compound, and here again it was observed that drivers were more inclined to park their cars at these positions, where a long walk to the house was eliminated. Only six tenants leased two garages each, 23 tenants were on the waiting list for garages, and sixteen of these required that the garage be at the foot of their garden. There were 12 vacant garages. If extra garages were to be built to satisfy the waiting list the garage provision would be 63 per cent. It should be noted, however, that some garages are rented by tenants living outside the area examined. A true figure would be in the region of 50 per cent. One garage appeared to be used as a commercial vegetable store, and the washdown tap was used to clean out crates, whilst at least one tenant had formed a large gate in the garden fence, and parked his car in the garden. Three abandoned cars were observed and

tenants complained that the secluded nature of the compounds helped to make this a problem.

4) The three separated layouts.

By contrast with Campshill the number of cars parked on the roads was considerably less in each of the separated estates, where special parking spaces have been provided. At Fairlands, where only a small percentage is built, the highest percentage of open parking was observed, even higher than at Campshill. This occurred especially in the evenings. At Sishes End and Trotts Hill, where garage provision is approaching 100 per cent the open car parking level was considerably less than that observed at Campshill and Fairlands. In some of the culs de sac at Fairlands the absence of garage blocks resulted in intensive use of the available space for overnight parking. In the main this was orderly, with cars parked at right angles to the road, although some cars were also parked on the hammerheads. The provision of garden gates obviously persuades tenants to use the intended parking areas, but some tenants did complain that vehicles often parked so close to the gates that the use of them became inconvenient, and even impossible at times. The problem was aggravated considerably when cars parked in front of the garage doors, close to and parallel to the garden fences, and became more acute in Sishes End, where garaging is more fully developed.

The arrangement of groups of two or three garages facing each other and parallel to the road does give rise to conflict, and tenants complained that on occasion entry to, or exit from, their garages was prevented by

cars parking across the doors. Drivers in some groups seemed to have private arrangements which enabled all garages to be used, and inconvenience shared. Figure 10.17 shows a typical situation where drivers A and B arrive home and wish to leave their cars outside temporarily. The cars are parked on the cul de sac roadway rather than on the garage forecourt so that drivers C and D can manoeuvre into position to their garages nearer the gardens. Tenants in general feel that they are responsible for their visitors' parting, so that neighbours' freedom of access is not disturbed.

At Sishes End 136 of the 308 garages were vacant, three of which had been vacated after the recent rental increase notice, and five tenants who already leased garages had requested a move to specific garages nearer to their houses. Three of the five had asked for a move of only one garage nearer to home. Of the built garages 44 per cent are occupied. This represents an actual garaging figure of 39 per cent.

At Fairlands, where nine of the 126 garages were vacant, and eight of these only recently, 55 tenants were on the waiting list for garages. Of these 25 were refusing all offers until garages were built at the foot of their gardens, and the remaining 30 were already renting but had requested moves nearer to their houses. One woman in Fairlands who had a car illustrated this need - "I don't want a garage, costs too much, but I would if it was attached to the garden. It's your own then." If present demand for garages was to be met the provision would be 45 per cent, a slight increase on the existing 41 per cent.

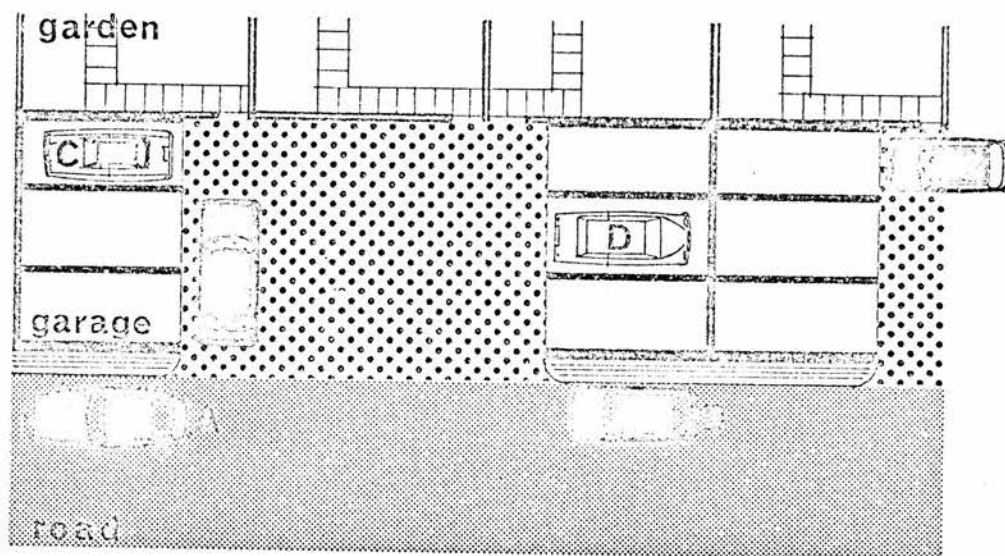
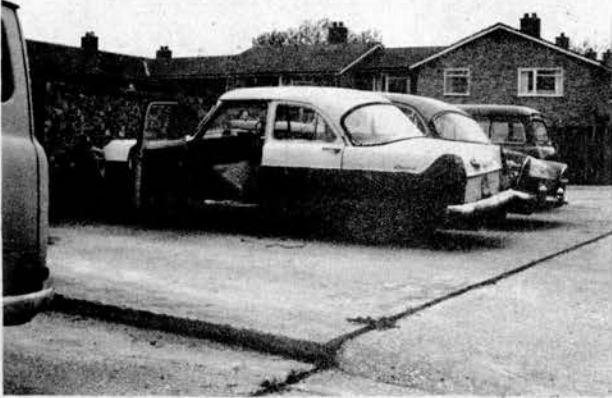


Figure 10.17 : Typical garage plans ; Sishes End.

1. VEHICULAR MOVEMENT

A



Campshill - abandoned cars in compound. Garage bases prepared.

B



Trotts Hill - car maintenance on cul de sac roadway.

C



Fairlands - refuse lorry reverses out of cul de sac. Street orderly in attendance to clear up droppings.



Sishes End. Obstruction of cul de sac by lorry and van parked.

E



Fairlands - attractive aspect of Webb Rise. Goal posts on wall beside visitors parking area.

F



Sishes End. Service lorry to shop. Children on trikes play on parking area.

Garaging facilities at Trotts Hill are similar to those at Sishes End, and the total number of parked cars observed is also similar. At Trotts Hill the number of parked cars observed was 565, only 16 more than at Sishes End. Of the parked cars at Trotts Hill 38.5 per cent were parked on roads, but very few on the local distributor roads. The individual forecourt to each garage was adequate for temporary parking for the tenant, but visitors tended not to use this private area. Some families owned two cars, and it was noted that a small car could be parked tightly into the splayed forecourt and still allow use of the garage by the other car. In common with each of the other estates a number of cars were observed parked for the whole fortnight supported on bricks, jacks or blocks with wheels or engine removed, presumably for repair. There was no waiting list for garages at Trotts Hill. One garage had been vacated recently. In all 39 garages are vacant, nearly all under the flats. Motor caravans are gaining in popularity as family vehicles, and where these were observed the garage door height was too low to accommodate them. Each estate had a few of these but noticeably more were seen at Trotts Hill.

5) The parking of lorries.

In both Campshill and Trotts Hill estates, only one lorry was observed parked overnight on the roadway. Three lorries were observed overnight in parking areas in Fairlands, while four were observed in Sishes End, parked on the cul de sac roadway. None were in parking areas. A coal lorry was consistently parked in Fairlands (the driver starts work at 6.00 a.m.), whilst a large Army lorry and a ready-mixed concrete

transporter observed in Sishes End each filled half the roadway.

During the daytime up to four parked lorries at any one time were observed in Campshill, only one of which was in a compound. Sishes End and Trotts Hill had rather less, but at Fairlands a maximum number of five were observed at lunchtime, three of which were on the roadway. One caravan was parked in Fairlands.

6) Identification and visitors' parking.

Most drivers interviewed had experienced difficulty at first in route finding and house identification on the three separated layouts. The house numbering boards at the entrance to each cul de sac greatly reduced the problem, especially when it was realised that the culs de sac were named after the local distributor road on to which they connected. Finding one's way seemed less of a problem to drivers on the roads than to pedestrians on the footpath system, although Stevenage people who had lived in the town for some years or had grown up in it, experienced less difficulty in finding their way about.

The policemen interviewed stated that they were frequently asked for directions, or the location of a particular house number, and had difficulty themselves in giving this information clearly and in a comprehensible manner. A lost or confused driver in Campshill would see any number of people from whom he could ask directions, and to a lesser degree this is true of Fairlands, where in any case access to a front door bell is relatively easy. Sishes End and Trotts Hill present a blank face to the road and a driver in the same situation would need to trespass the privacy of someone's garden to

make his enquiries at the back door. The Stevenage Fire Station receives about fifty enquiries a day for direction finding within the town.

Visitors' car parking at peak times in Campshill disrupts the parking conventions and causes friction. Visitors generally park on the roads, as near as possible to the house being visited. At Fairlands parking areas for visitors are provided in Archer Road and Webb Rise and cars were observed stopping in them, their drivers going directly to front doors along the pedestrian ways. All these drivers obviously knew where they were going. 'First time' visitors would be more likely to arrive at the back garden gate in the culs de sac. At Trotts Hill all visitors arriving by car must enter through the back garden gate. The only alternative to this would be to leave the car in Vardon Road at the head of the pedestrian way and to walk the rest of the way. No cars were observed in these positions, and no parking bays are provided for that purpose. Observations show that many tenants leave their cars standing outside their garages in the evening, and consequently visitors park on the cul de sac roadway adjacent to the garden fence. Parking spaces in the culs de sac are not provided specifically for casual visitors.

It was not possible to establish a pattern of visitors' parking as a separate function but the results of the survey carried out by the Estates Office indicate that most visitors arriving by car enter the house through the private garden.

7) Appearance of roads.

Generally, until prompted, most interviewees made little mention of the appearance of the cul de sac; but when they did the parked cars were generally the first target. For example: A tenant in Campshill,

"Parked cars on the roads at night are a bleeding eyesore, especially in the summer when folks can't be bothered putting them away. In

Pin Green they ^{L?} the cars off the road." A tenant in Fairlands,

"I don't like to see parked cars, there'll be a law against it one day."

A tenant in Sishes End, "..... best in Stevenage, with the trees and that, but I don't like the view (from north to south) down Verity Way cul de sac - slum of the future."

8) Summary.

The cul de sac system on the three separated layouts offers certain real advantages over the loop road system employed at Campshill.

(a) Circulation :

Excepting at Sishes End few parked cars were observed on the distributor roads. Major circulation through the newer estates was felt to be easier, more convenient and safer than at Campshill. The more intensely used culs de sac at Sishes End functioned both as distributors and parking areas. Movement was more hazardous and required a higher degree of care than at Campshill. Cul de sac terminating in hammerheads were inconvenient and dangerous to turn in when off the road casual parking spaces were not provided. Parking on culs de sac was never at such a level to seriously affect circulation. A series of blind corners presented a greater danger.

Large service vans and lorries experienced difficulty in turning in the constricted culs de sac. The invitation of constantly performing three point turns resulted in lengthy reversing runs. Excessively high speed was rarely observed, but naturally occurred more often on long straight sections of distributor roads. At Sishes End and Fairlands tenants complained of speeding in the culs de sac, although this was not observed. No criticism on this point was made at Trotts Hill. The more closed in nature of the culs de sac here may have some effect on speed levels. The estate distributor road is the "front garden" of the road approach network, and its good appearance matters a great deal to tenants. By the same token, the semi-private culs de sac are the "back gardens", where appearance matters to a lesser degree. The larger the cul de sac the less responsibility the tenants individually feel, and the more importance initial care with layout and appearance assumes.

(b) Garage provision :

Excepting Trotts Hill estate, garages are not provided solely for, and within the curtilage of individual houses in the estates. The statistics indicate that at present there is a demand for garages from 45 per cent of the families on each of the other three estates. This would appear to confirm the Corporation's present initial garage provision standard of 50 per cent.

A survey at Trotts Hill may also show that a 50 per cent garaging provision might have been sufficient to meet present day demands. However, it was noted that the garages in Trotts Hill were used for storage of household

articles, children's large toys, bicycles and garden equipment. It may be the case that tenants who originally did not wish to rent a garage, having now had the use of one as an extension to the house, would wish to retain it in any case. It is significant that without exception the vacant garages at Trotts Hill were not connected to dwellings or their gardens, and that by far the majority of requests for garages, or for re-allocation of garages in the other estates, were related to the containment of the garage within the curtilage of the house. There is a trend towards increased ownership of large mobile caravans (e.g. Dormobile), and these are too high for the existing garages.

(c) Parking :

The general pattern of parking habits, and the numbers of parked cars, clearly show that off street parking areas are essential in residential developments. Drivers attempt to park their vehicles as close as possible and on the natural route to their destinations, and will park on the roads where convenient parking spaces are not provided, (i.e. at Campshill). Between 20 and 30 cars were parked overnight on the roads on each of the separated layouts compared with twice that number observed in Campshill. Parking of cars can be haphazard, especially at lunch and early evening times, when a majority of drivers do not put their cars into garages. The hardstandings to their garages must be freely accessible, and where this is not the case parking on roadways increases. Sishes End demonstrates this quite clearly, and were it not for the high proportion of vacant garages the problems of access could be serious.

The Corporation requires suitably grouped parking spaces for visitors at the rate of one per three houses, and one per two flats. Neither Trotts Hill nor Sishes End estate meet this requirement. At Fairlands estate the requisite number of parking spaces are provided off Archer Road and Webb Rise adjacent to the entries to the pedestrian ways. These areas are used, though not intensively.

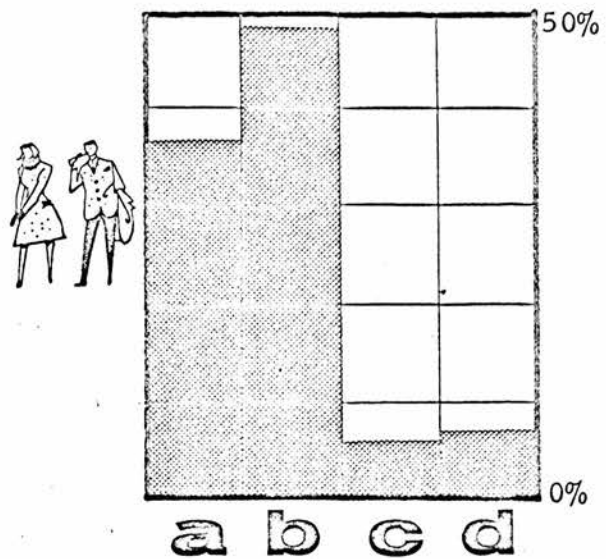
The few lorries seen parked overnight were almost invariably parked on the culs de sac roadways. The exception was Fairlands estate where the visitors', or casual parking spaces could conveniently accommodate these vehicles, and avoid the necessity for noisy manoeuvring in culs de sac.

Pedestrian access and circulation.

1) Adult Movement.

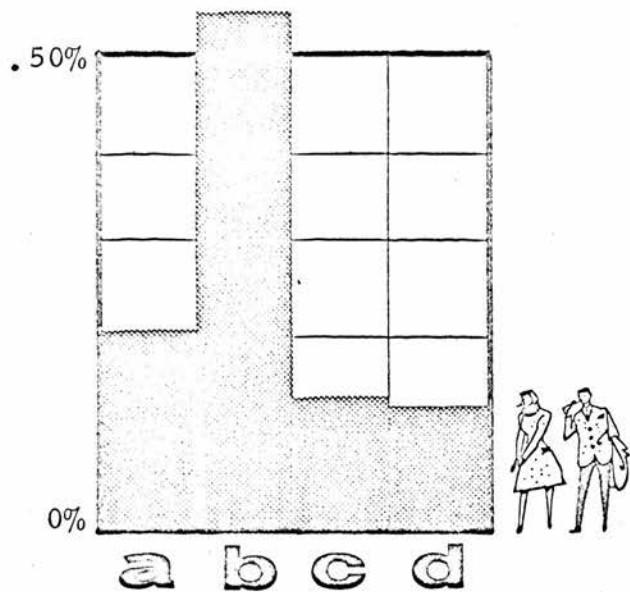
The main pedestrian movement within a housing estate is generated by the location of the shops, primary school and bus stops. The observations on the four selected layouts were conducted with this in mind and the walk rounds were centred on the routes to these facilities; Figure 10.18 shows the results of the walk rounds on the layouts. The number of adults observed on each of the four locations is expressed as a percentage of the total number observed. As can be seen, significantly more adults were seen walking on the roads at Campshill than at Sishes End. Of the three traffic separated estates more observations were recorded at Sishes End than either Fairlands or Trotts Hill. Figures 10.19, 10.20, 10.21 and 10.22 show the location of recorded observations.

CAMPSHILL, CHELLS

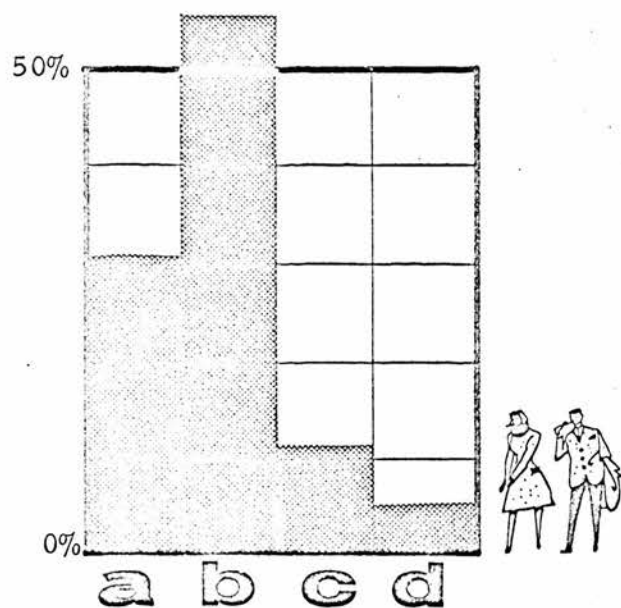


- a** Roads, garage courts, parking areas
- b** Pedestrian ways
- c** Front gardens
- d** Public open space

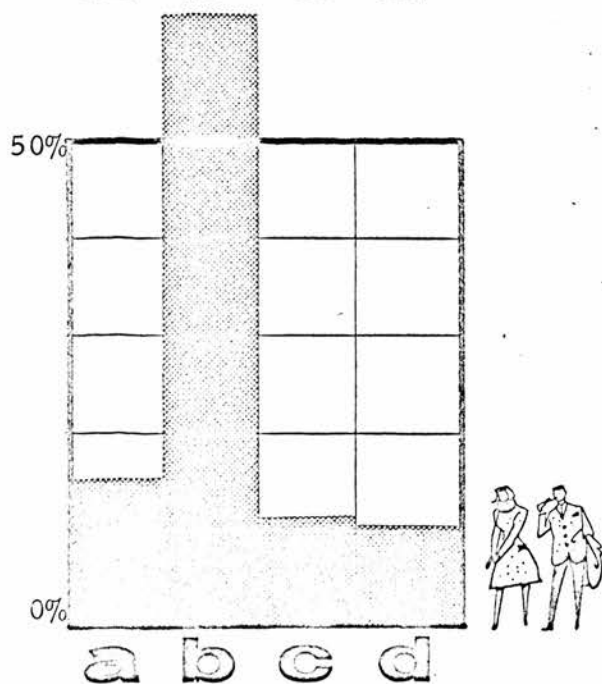
Figure 10.18 Adult observations made on the four estates during weekdays. The number of adults seen in each location is shown as a percentage of the total number of adult observations.



FAIRLANDS, PIN GREEN



SISHES END, PIN GREEN



TROTTS HILL, PIN GREEN



THIS PLAN SHOWS THE
POSITION OF CHILDREN
AND ADULTS RECORDED

PEDESTRIAN OBSERVATIONS

Figure 10.19

CAMPS HILL

SCALE OF FEET
0 100 200 300



THIS PLAN SHOWS THE
POSITION OF CHILDREN
AND ADULTS RECORDED.

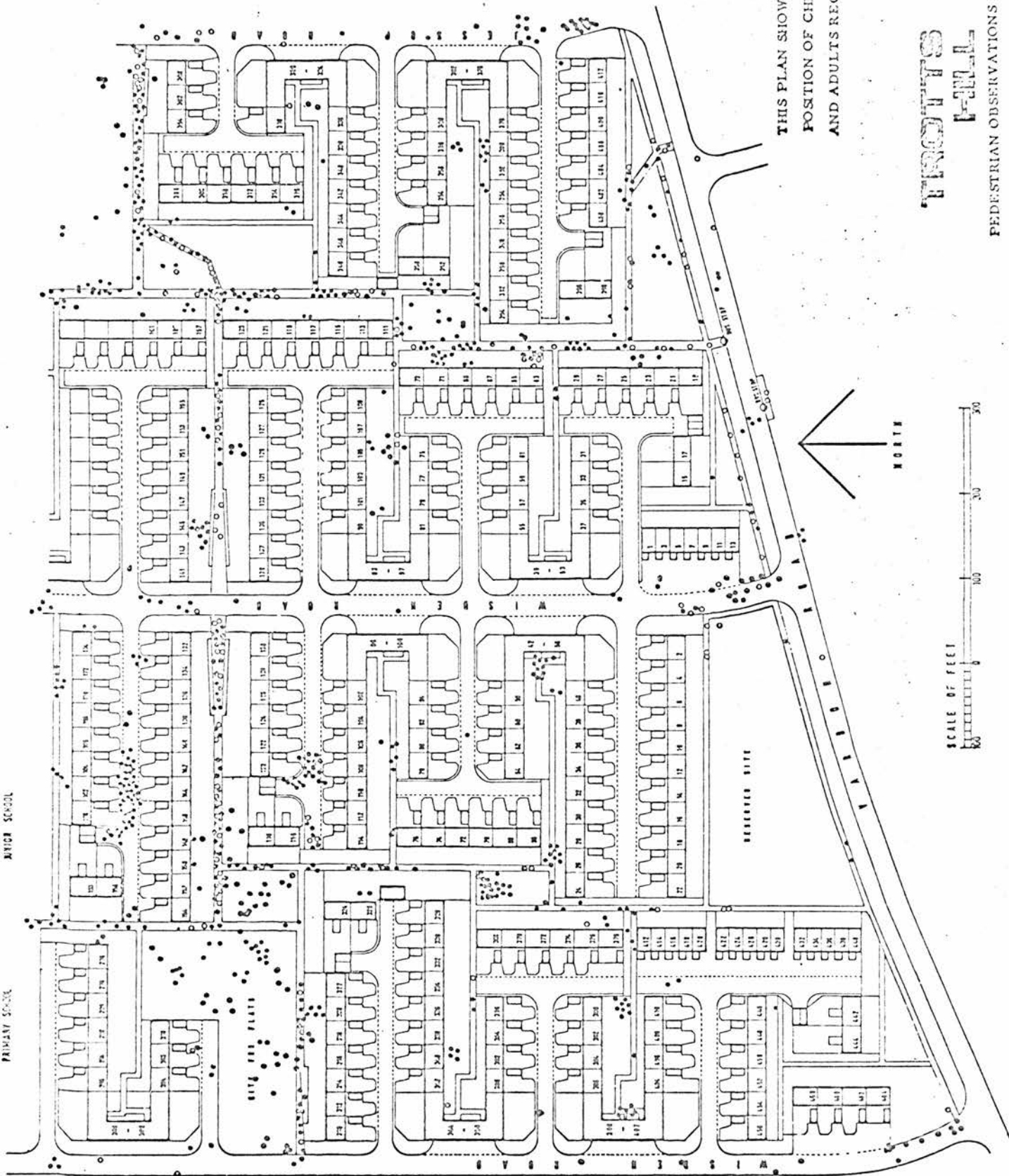
FAIRLANDS
PEDESTRIAN OBSERVATIONS Figure 10.21

SCALE OF FEET
0 10 20 30 40 50 60 70 80 90 100

NORTH

AVENUE 50-021

PRIMARY 50-03



THIS PLAN SHOWS THE
POSITION OF CHILDREN*
AND ADULTS RECORDED

THOUGHTS
FALL

PEDESTRIAN OBSERVATIONS Figure 10.22

At Campshill both roads and footpaths were narrower and more critical circulation problems were noticeable on both. Mothers pushing prams were often forced on to the roads to pass pedestrian traffic in the opposite direction. The vulnerability of pedestrians in these conditions was particularly evident when vans and lorries were forced on to pavements to pass one another. The state of the pavements suggests that this is not an infrequent occurrence.

The most acute problem encountered at Campshill however, was caused by the separation of the main shopping centre, The Glebe, from the housing area studied by Chells Way. This through road was busy all the time, with peak periods from 8a.m. to 9a.m. and again from 4.30 p.m. to 5.30 p.m. Traffic on a Saturday, particularly in the morning was very heavy. In talking to tenants at Campshill, this was the most frequent source of complaint encountered; most drew attention to the hazards in trying to cross Chells Way, whilst the tenants in the immediate vicinity were obviously troubled by the noise. The road pattern at Sishes End provided convenient direct access to both shops and primary school and pedestrians were frequently encountered on them. Additional access had been provided from the pedestrian ways into the culs de sac at the request of the community association.

The starting point of a journey also has some bearing on the particular path taken. A number of people were given lifts home and the usual and most convenient dropping off place was the head of the cul de sac. Similarly mothers whose prams could not easily be pushed through the

house from the garden, started their journeys to the shops on the vehicular side, and rarely went back on to the pedestrian ways.

The problem of identification of houses from the pedestrian ways was only mentioned once as being a major and permanent problem. In this instance the problem arose because two sets of identical numbering occurred within one pedestrian square. Houses bearing the same numbers faced each other across the square, and visitors and the postmen were constantly being confused.

The proportion of observations made at Fairlands was similar to Sishes End except in the use of the underpasses. At Sishes End most people were seen to use the underpass under Vardon Road on their way to The Oval shopping centre; at Fairlands it was obvious that the underpass under Archer Road to the shopping centre was not being used to the same extent. An observation was carried out at this underpass for one and a half hours on a Saturday morning. The number of adults and children using the underpass or the road access to the shopping centre was recorded. A total of 169 observations were made and it was seen that 65 per cent of the adults used the underpass, and 35 per cent crossed the road. Use of the underpass in this situation involved negotiating two fairly steep slopes, and a detour for people coming down Archer Road. Although not recorded it was observed that older people in general tended to use the road crossing which is probably not unconnected with the additional amount of physical effort involved in using the subway. A large number of observations were made of people using the footpath

parallel to, and separated by a grass strip from, Archer Road; this involved crossing the cul de sac entrances.

The pattern of adult pedestrian movement at Trotts Hill was similar to and was significantly better than Sishes End or Fairlands. The inconvenience caused by the difficulty in not being able to take the shortest route to an objective (except by climbing a fence) was commented upon frequently. Frequent use was being made of the vacant flats sites to gain access from the pedestrian ways on to the roads. The only other route from pedestrian to vehicular sides, the through access to the flats above garages, was not frequently used. An interesting point was that many people using the bus service entered the estate on the vehicular side, and because of the difficulty of getting back on to the pedestrian side usually stayed on the road until they reached their house.

There was evidence at Trotts Hill of routes being formed on the pedestrian side of the house that were more convenient in use than the paved pedestrian ways laid out. This was partly due to the poor functioning of the surface water drainage. The problem of negotiating the underpasses in winter also received considerable criticism from tenants, the near maximum slopes being difficult to use with ice or snow on the ground. The main pedestrian ways were also more exposed than on the other layouts. This is aggravated by the vacant flats sites introducing large bleak areas of open space alongside the pedestrian ways. ■

On all estates, adult movement generally took the shortest possible route. This can be further substantiated by similar studies carried out at the Building Research Station. The findings of these studies showed that proportions ranging from 88 per cent to 97 per cent of respondents on a number of different estates said they took the shortest route to the shops. It is interesting to note that of the reasons given for not taking the shortest route the commonest were the desire for a change or a more interesting route, and muddy conditions on the shortest route. Less than 1 per cent of respondents said they took a longer way round to avoid the dangers of traffic.

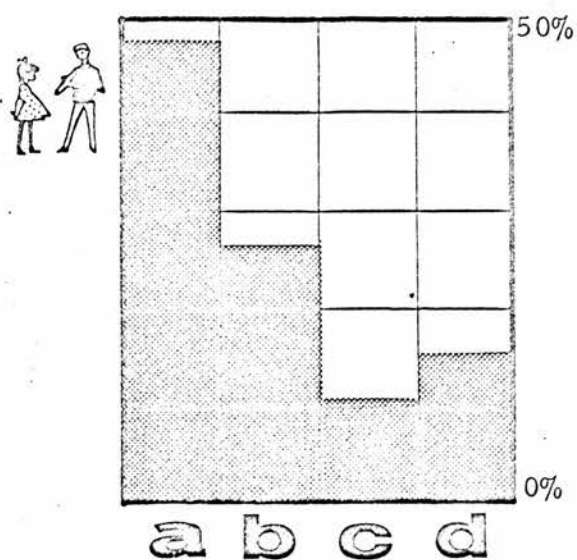
2) Children's Movement.

One of the fundamental objectives of Clarence Stein's Radburn layout and of traffic separated planning in general, is children's safety. The observations carried out generally concentrated on the aspects of safety concerned with dangers from vehicular traffic. Figure 10.23 shows the number of children observed on the four estates expressed as a percentage of the total number of children observed. As can be seen, a higher proportion of children were observed on the road at Campshill than on the other three layouts.

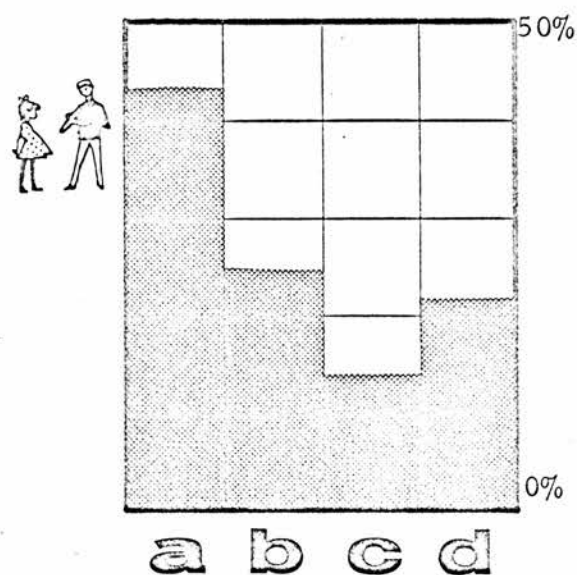
a) Children's Journey to School -

The problem of supervision of a child's journey to primary school can be acute for some families, particularly for those with other small children. The use of separated planning principles have always been claimed to have advantages from this point of view. Observations were therefore carried out on the four estates to see to what extent mothers accompanied their children to and from school. In addition

CAMPSHILL, CHELLS



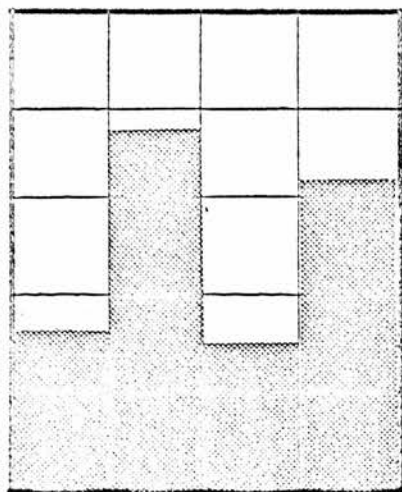
WOODWAY LANE, COVENTRY



- a** Roads, garage courts, parking areas
- b** Pedestrian ways
- c** Front gardens
- d** Public open space

Figure 10.23 Observations of children The number of children seen in each location is shown as a percentage of the total number of children observed.

50%

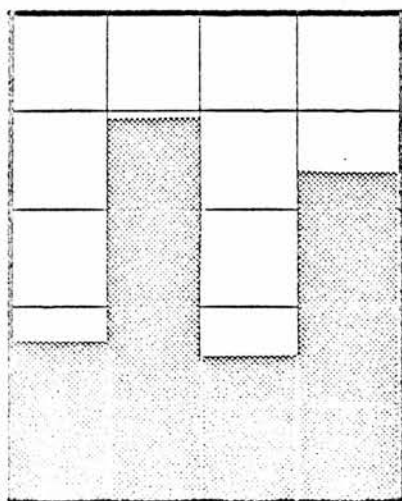


0%

a b c d

FAIRLANDS, PIN GREEN

50%

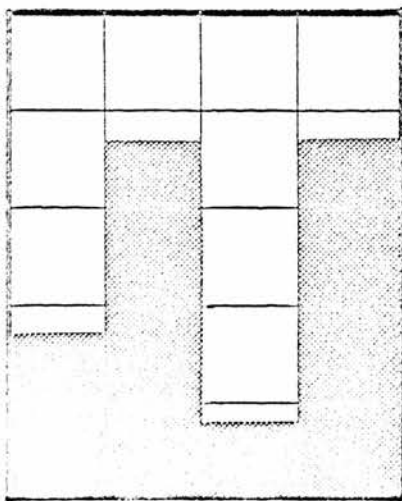


0%

a b c d

SISHES END, PIN GREEN

50%



0%

a b c d

TROTTS HILL, PIN GREEN

the headmistresses of the schools concerned were interviewed to obtain their views.

At Campshill the majority of children seen on the journey to and from school were accompanied by adults. The mothers questioned said that from their knowledge the majority of children were always accompanied (one mother claimed as many as nine out of ten).

By contrast the degree of supervision seen on the three separated estates was considerably less. Many mothers said when questioned that they did not always accompany their children.

The factor of safety alone, however, may not be the only reason for accompanying children to school. At Trotts Hill the meeting of mothers at the school gates appeared to be a major social occasion. The headmistresses at two of the primary schools thought it desirable for the children to be accompanied anyway, and they welcomed the opportunity for contact with parents. Similarly, the parents mentioned that they liked fetching their children from school and frequently obtained informal assessments from the teachers on their child's progress.

The schools themselves were doing much to encourage the use of the pedestrian system by children and appeared to be successful at least as far as the journey to and from school was concerned. The parents were frequently blamed by teachers as setting a bad example to the children. In fact practically all the children observed using the road on the journey to school were accompanied by mothers. A typical pattern of journeys was mentioned by a mother living in

Webb Rise, Fairlands, whose seven year old daughter attended Moss Bury Primary School. In the mornings she always took her daughter to school and crossed the road with her. The child returned home for lunch on her own, and the mother insisted she went down to the nearby underpass. The mother occasionally met her in the afternoons if this coincided with her shopping plans, and they would then return home across the road. Otherwise she would use the underpass again.

Theoretical catchment areas for primary schools were not working in practice and many children were more than 440 yards from their school, some in excess of 880 yards. It was not possible to determine whether the distance between home and school had any relationship with the degree of supervision of the journey. It was noticed however that the journeys to the Roman Catholic Primary School of Pope Pius XII from Sishes End, Trotts Hill and Camp'shill were almost always supervised; the distances involved vary from about half a mile to one and a half miles.

The reaction of the teachers at schools in the three segregated layouts was also interesting in as much as they thought the housing layouts very safe for children, and quoted examples of more traditional areas where the problem of child safety was a source of major worry to the teachers at schools in these areas.

b) Journey to School by Car -

As one would expect the great majority of children travelled to school on foot. The degree of car usage did not appear to relate to the

distance a child lived from school, but more on the convenience of the journey relative to the car user; usually the route to the school coincided with the fathers journey to work. The headmistresses of all the schools said there was an increase in car usage in bad weather. More cars arrived at Campshill Primary School than the three other estates and these set children down at the school gates in Chells Way. This, combined with the location of a busy road junction nearby and a 'lollipop' crossing opposite the gates, caused a lot of activity and appeared to be hazardous.

At Pin Green Primary School parents were encouraged to use a school service road and drive up into the school entrance. The use of this particular entrance was also prohibited for use by children on foot. This arrangement worked well and few cars were seen setting children down in Archer Road.

The lowest incidence of cars was at Moss Bury Primary School serving Fairlands and Sishes End. There were also few cars observed at Trotts Hill Primary School, where a gate was to be formed for the use of children arriving by car.

c) Use of Cycles on Pedestrian Ways -

The use of cycles by children was also observed on the daily walk rounds; the ownership of both tricycles and bicycles was very high. Many small children were seen cycling on pedestrian ways and their behaviour except on some of the underpasses could not be described as dangerous. The slopes of the underpasses did enable children to reach high speeds and coupled with blind spots at the corners of

the underpasses could produce problems for less agile older people. Few older children were seen riding bicycles on pedestrian ways and this never appeared to be dangerous. Children were not sure whether or not they were allowed to ride bicycles on the pedestrian ways; some thought, quite wrongly, that the pedestrian ways marked with a black line of setts down the middle were intended for dual use of cyclists and pedestrians. Many mothers were concerned for the safety of their children from accidents involving bicycles on the pedestrian ways.

d) Use of Cycleways -

The cycleways did however appear to present hazards for children, particularly where they were joined by, or crossed, pedestrian ways. The cycleway near Pin Green Primary School contains two blind corners and as this was frequently used by children on foot, to and from school, was a source of worry and concern to parents, aggravated by the occasional use of this particular cycleway by mopeds. The cycleway leading from Almond Springs Estate into Sishes End was also a source of worry to parents. Users of both the pedestrian way, which crosses it, and the cycleway are concealed from each other's view by a well established hawthorn hedge.

e) Security of Children -

The safety of children in other aspects was also mentioned by parents. In all the estates there had been cases of molesting of children. From the records and experience of the police there was no difference at all in the frequency or types of crimes against children on any of the four

estates. The underpasses on the separated layouts however were frequently mentioned as causing anxiety to mothers, because they were darker and usually partially concealed. This concern can partly be accounted for because there was a case of indecent exposure in an underpass at Trotts Hill only a short time before the observations began.

Mothers also drew attention to the difficulty of finding children on the three traffic separated estates -

"One minute he's outside the front door playing, and the next he's gone, and there's a hundred different ways he could have gone!"

3) Summary.

More children were observed on the roads at Campshill than the other three layouts and in most aspects this was the more dangerous of the four layouts from a child's point of view. It is also evident that the more positive methods of separation adopted at Trotts Hill did not produce any significant fall in the proportion of children seen on the roads. The question of children's safety does however depend also upon parental control and this did appear to be less effective at Campshill. Very small children were often seen shopping unaccompanied late at night.

The majority of the parents appeared to be aware of and to welcome the benefits of segregated layouts. One would also expect that as the children grow up who are conditioned to use the pedestrian ways then their usage will increase. On all the estates adult movement was seen to take the shortest possible routes to objectives. On

2. PEDESTRIAN MOVEMENT

A



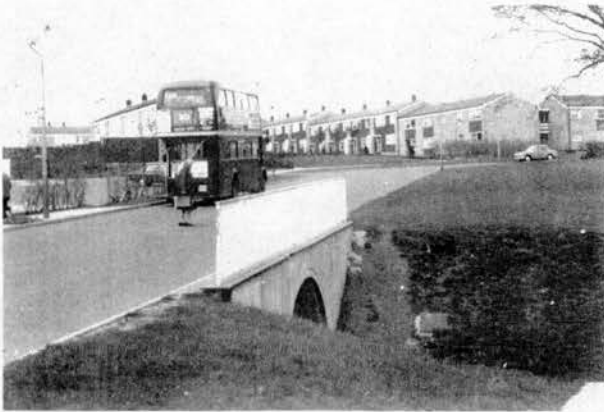
Fairlands - Shortcut to shops,
path worn in grass.

B



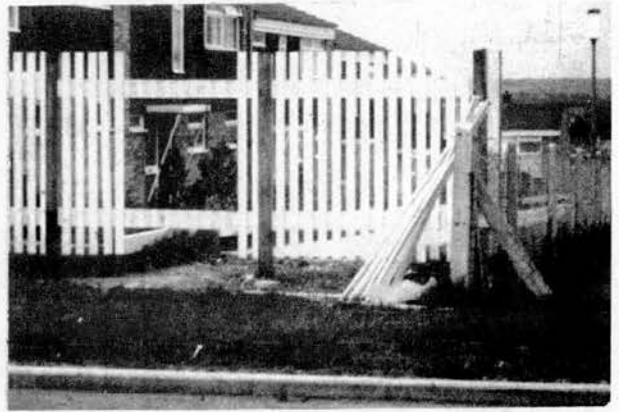
Sishes End - pedestrians on
Douglas Drive.

C



Fairlands - Woman crosses
Archer Road from bus stop,
avoiding the underpass.

D



Trotts Hill - shortcut to schools
from Wisden Road - the results
of a weekend's work.

E



Fairlands - Underpass to shops.
Pedestrians go down under road
at grade level.

F



Trotts Hill - During heavy rain
water flows in waves, the whole
width of the pathway.

the three separated layouts the proportion of adults observed on the road is an indication of the indirectness of the pedestrian network system. At Sishes End nearly as many adults were seen on the roads as at Campshill. Least adults on the road were observed at Trotts Hill.

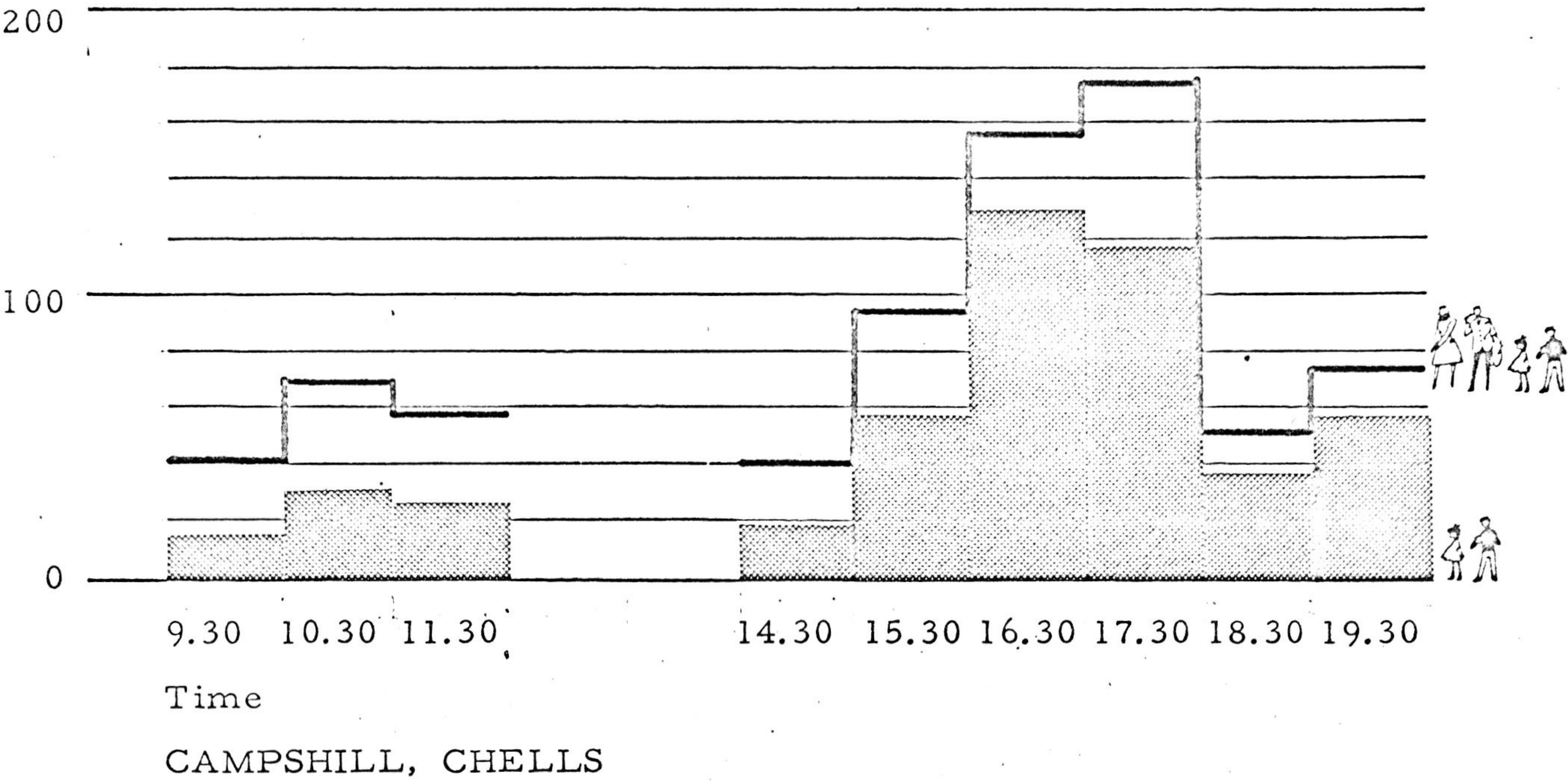
In many cases the causes of routes taken were outside the influence of planner or architect. For instance at Sishes End and Trotts Hill the location of bus stops near the end of culs de sac increased pedestrian activity on the road. At Sishes End this was further aggravated because the bus stop was not connected to the footpath system. The pattern of pedestrian activity during the day on all four estates was similar and is illustrated in Figure 10.24.

Outdoor leisure activities.

With rising incomes and educational standards more importance is being attached to the provision of recreational facilities in the design of new housing areas. It is likely that outdoor recreation will become the most popular form of leisure for many. With this increase in affluence and leisure time people will require additional space for trailers, caravans, boats, etc. Storage of these extra possessions cannot be easily resolved in the traditional contexts of gardens on mass housing estates. In addition people who do not participate in sport are likely to seek open space for games and picnics in the vicinity of their homes.

1) Family Leisure.

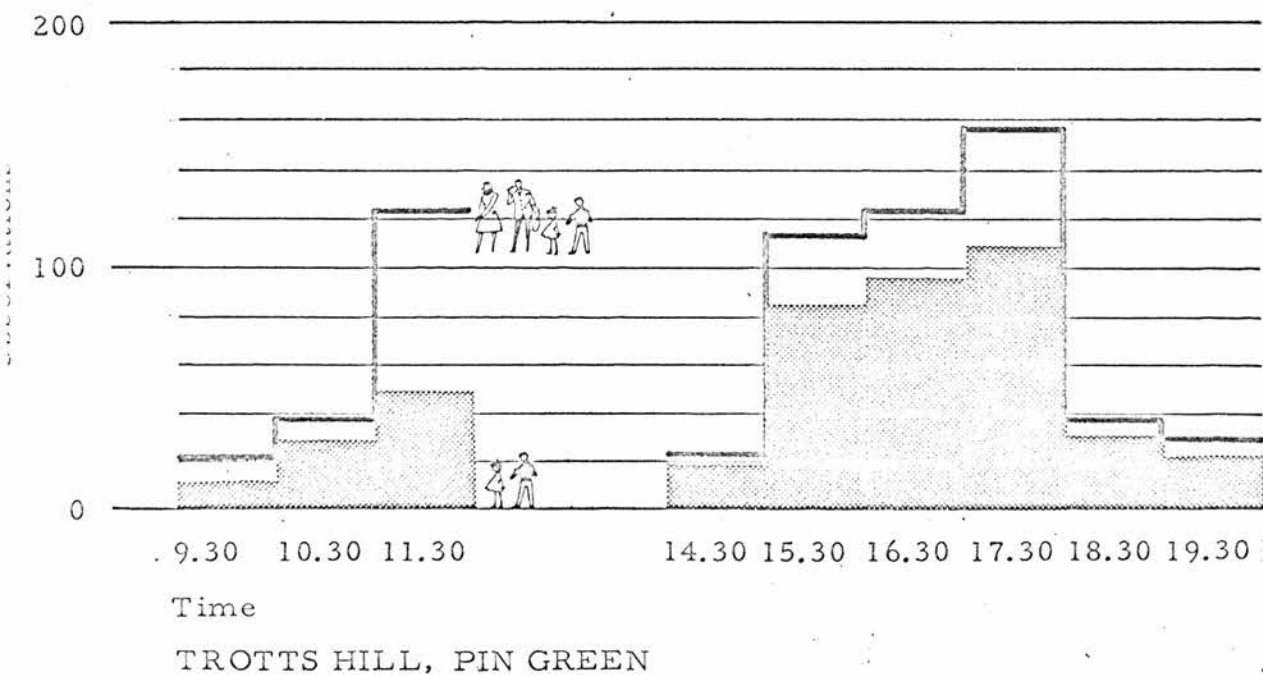
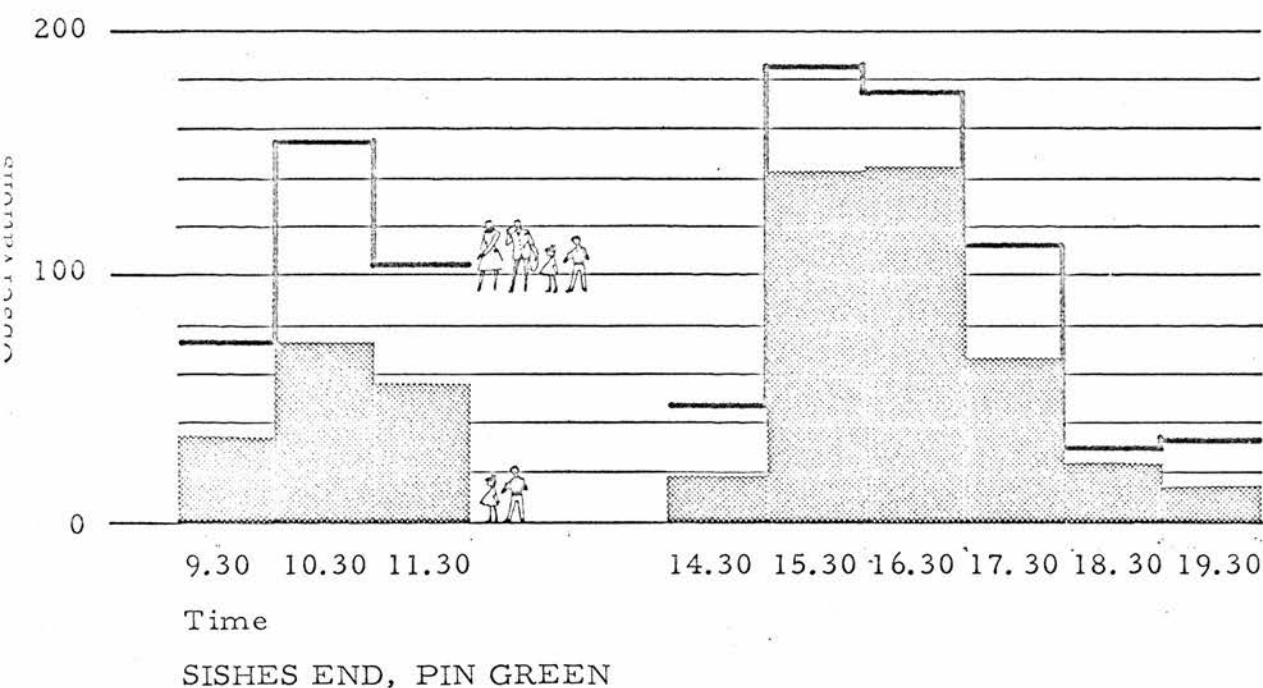
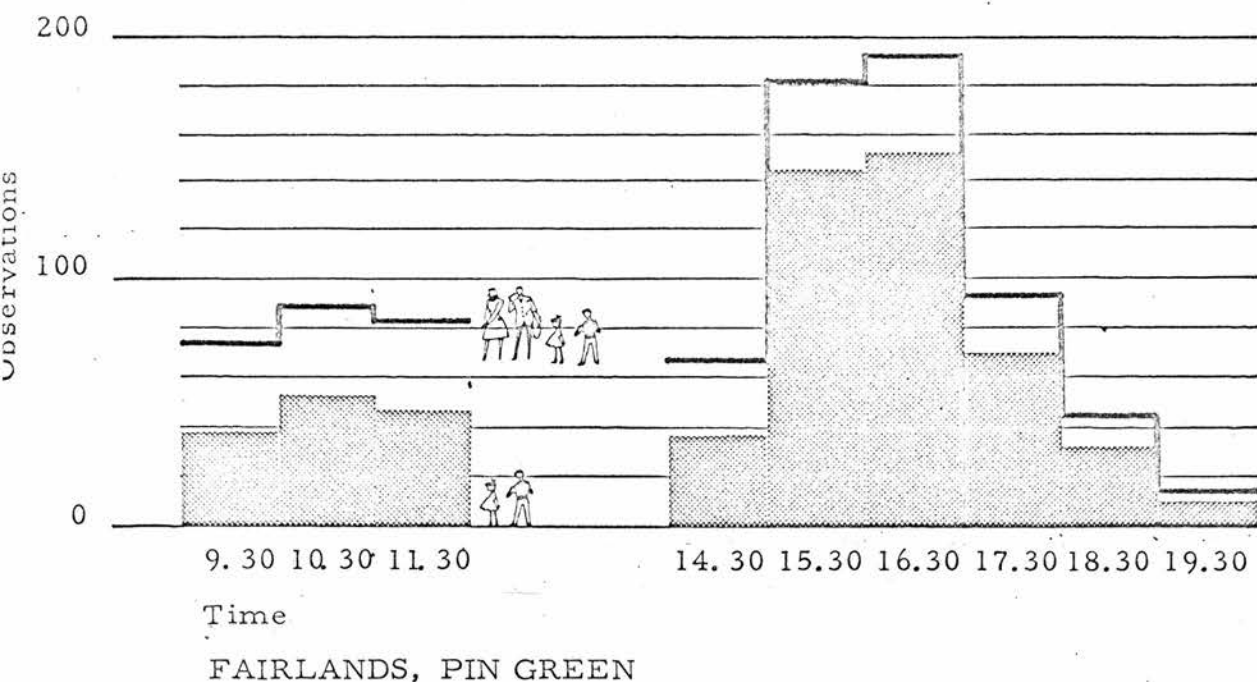
The observations and interviews carried out at Stevenage were to establish the use of the external spaces for recreation, and the



TOTAL OBSERVATIONS SEEN.
(Adults and Children)

TOTAL CHILDREN SEEN

FIGURE 10.24 AVERAGE WEEKDAY OBSERVATIONS ON THE FOUR ESTATES



degree of tenant satisfaction with these facilities.

a) Private Gardens

The provision of private gardens is a difficult and complex problem in the design of housing layouts. In recent years the size of private gardens has decreased largely in efforts to increase density but also in the case of separated layouts to minimise travel distances. The argument for smaller gardens on separated layouts is supported by the close proximity of the greens. Architects are also advised that few people want to grow vegetables and in an age of high car ownership and television have little time for gardening.

There is however little information on residents' reactions to smaller gardens. As this trend towards smaller gardens increases it becomes of great importance to examine the use to which gardens are being put, and to assess the space standards required for garden activities.

Campshill contained some of the largest gardens of all four layouts, and some tenants commented favourably upon this. They thought that to move to a newer area necessarily would mean a reduction in garden size. The gardens were well screened from the vehicular courts, but were only separated by low fencing and were therefore overlooked by neighbours. There was evidence that additional privacy had been sought by the use of planting and tenants' fencing. Privacy in gardens was not however mentioned as a major problem by tenants in Campshill. A greater range of activities appeared to be taking place, two aviaries were seen, and requests had been

received at the estates office about the possibility of keeping chickens. Although some sheds were seen, probably reflecting on the storage capacity of the dwelling, there was only one greenhouse.

On Sishes End estate the main complaints about gardens were concerned not with size, but with drainage problems. The difficulty of surface water draining away appeared more acute on houses whose gardens sloped towards the house. The difficulty of children's play in a sloping garden, containing steps, was also mentioned. The attractive appearance of the gardens, probably due to the use of brick walls as an enclosing element, and the landscaping also received favourable comment.

The survey carried out by the Pin Green Estates Office gives good evidence of the reaction of tenants to gardens at Fairlands and Trotts Hill. At Fairlands the majority of tenants were satisfied with the size of their garden, but were equally emphatic that they did not want a smaller paved one. (Less than 5 per cent said they would prefer a smaller paved garden). An anomaly over the relative size of garden to size of house was noticed at Fairlands. The three storey seven person houses had in fact the smallest gardens and these were totally inadequate for anything more than storage yards.

Trotts Hill had the smallest gardens on the estates and a variety of comments were received from 'what gardens'?, to more positive ones that they were 'too bloody small'. It is difficult to relate the desirability of a garage within the curtilage of an individual house plot to the size of garden and very few tenants saw these as related

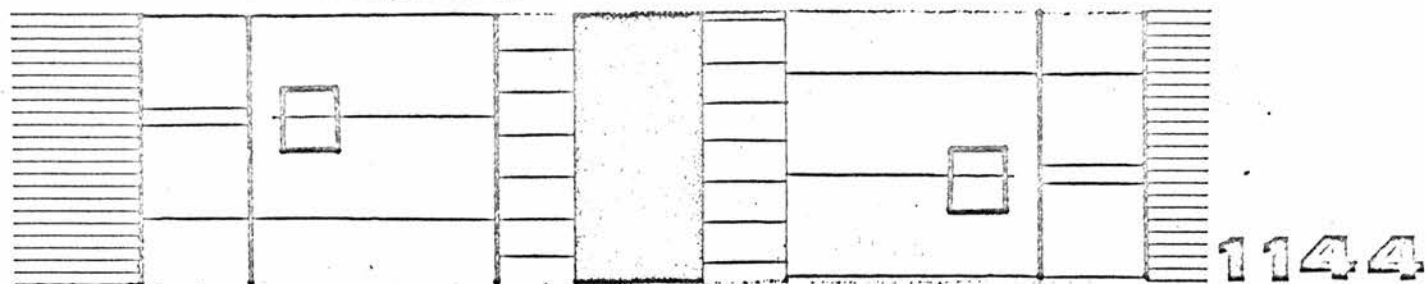
factors. Many however drew attention to the complete privacy of the garden. In some gardens the layout had been given over entirely to children's play, a swing or a climbing frame completely dominating the area. From the state of the grass in some gardens it seemed that such small areas need to be largely paved. The gardens at Trotts Hill were certainly not used to the same extent as the other estates for the traditional functions of gardening. This is probably accounted for by the fact that children's play alone would take priority for most families. It is also possible that the higher proportion of car owning families at Trotts Hill results in less time for gardening.

The gardens on the three traffic separated layouts did have unique problems that were not evident at Campshill. The use of the back door by tradesmen impinged on the privacy of the garden and also on its security for pets and children. Mothers were worried that the gate may not be properly closed after a tradesman has been, and small children would wander off on to the road. Similarly, families, where both husband and wife worked, had to padlock the back gate to prevent their dog being let out during the day. The size of typical gardens on each of the four estates is shown in Figure 10.25.

b) Front Gardens and Public Open Space

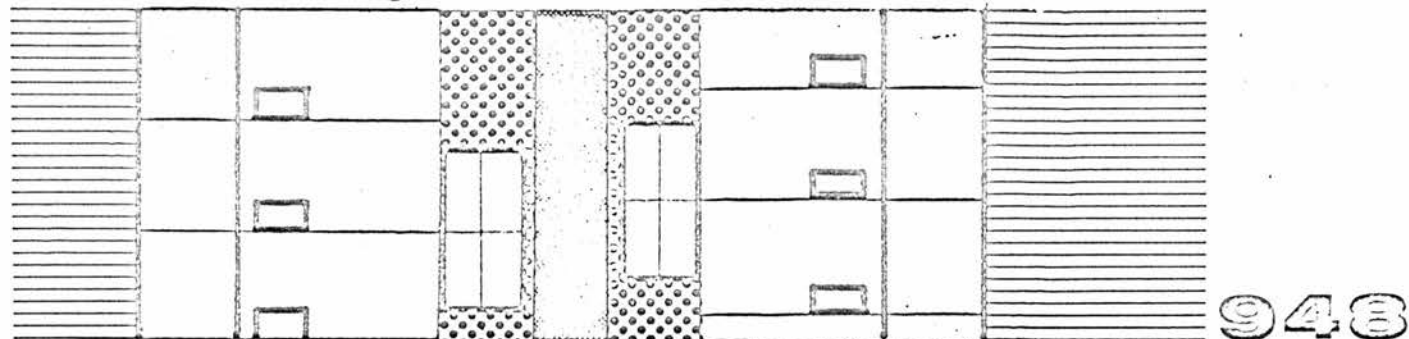
Public open space, including the front gardens, was not observed being used by adults for purposes of recreation. Tenants appreciated the front gardens as affording a visual privacy, a barrier between house and public pathways. They were all well

Area 1,144 sq. ft.
Length 52 ft.



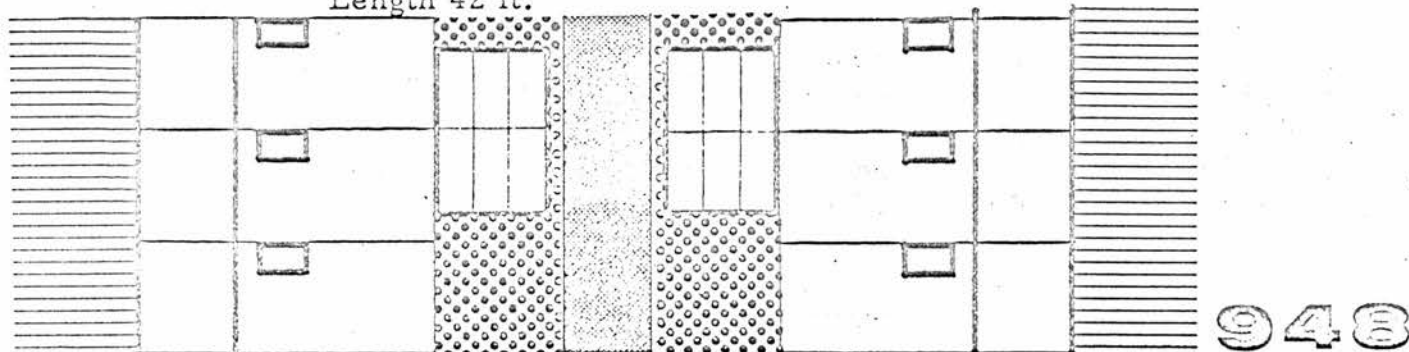
CAMPSHILL, CHELLS

Area 948 sq. ft.
Length 42 ft.



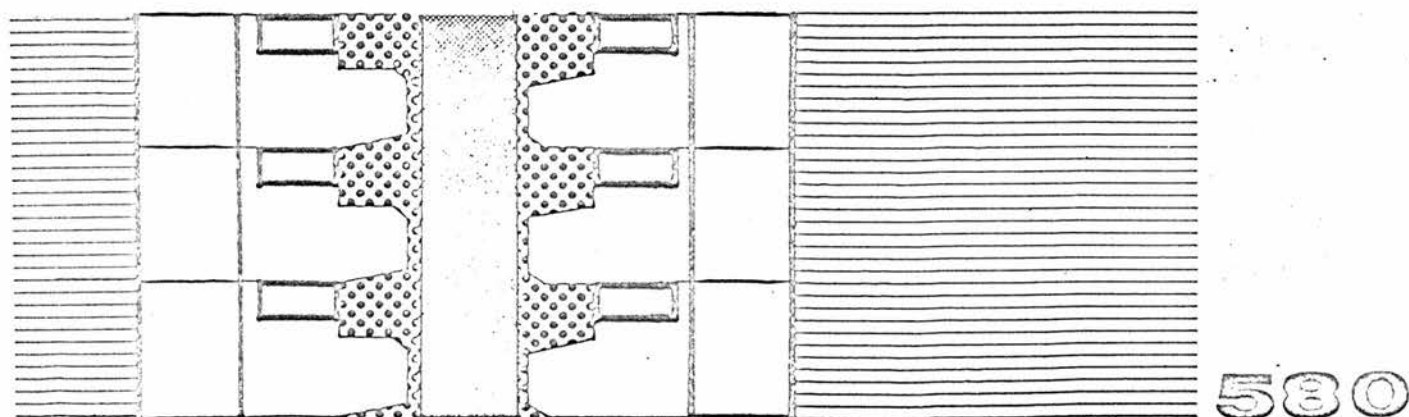
FAIRLANDS, PIN GREEN

Area 948 sq. ft.
Length 42 ft.



SISHES END, PIN GREEN

Area 580 sq. ft.
Length 35 ft.



TROTTS HILL, PIN GREEN

FIGURE 10.25 Typical gardens sizes on the four estates.

maintained; gardening was seen taking place in many. There were comments that more protection was necessary than the single rail fence to keep dogs and (other people's) children out, and to prevent tradesmen from taking short cuts. A criticism encountered on all four estates was that there was nowhere to go and take the children for a walk. This appeared to be more frequent among the non car-owners. It was again in this context that the need for more parks was made and comparisons were drawn with the London parks.

In talking to tenants about routes they took within the housing areas for walks two points occurred frequently. The emphasis put upon choice of route was mainly concerned with the attractiveness of the route. Sishes End being an example of an area that was thought to contain many pleasant walks. In addition the factor of intrusion of privacy of other people's areas was mentioned. Tenants were very sensitive of the closeness of houses to some of the pedestrian ways and they themselves did not wish to 'appear noseey.'

2) Children's Play.

In this study observations were only made of the location of children on the four estates. It was not possible to establish what children would like to do, nor what they were doing whilst not outdoors; also because of the high degree of privacy, it was not possible to observe the use of gardens by children. These were therefore observations of what children did in given situations, not what they would do in an ideal situation.

The primary aim of the observations was to establish where the children were playing and to record this information in three age groups:-

1. 0 - 5 year olds (excluding babies in prams)
2. 5 - 11 year olds
3. 11 - 16 year olds

It was thought particularly relevant to establish how many children were playing on roads or culs de sac and try to relate this to studies of separated layouts elsewhere.

a) Previous Studies of Separated Layouts

149

Findings of Building Research Station studies at Willenhall Wood,
150
Basildon, Harlow and Sheffield showed that a high proportion of children played on roads and culs de sac, and that an appreciable proportion of parents were worried about traffic hazards in relation to children's play. The studies also showed that there was little gain made in this respect in the separated layout. It was also found that the proportion of respondents conscious of danger from traffic also appeared to relate to the degree of car ownership on their estate. For example on the new town layouts, where at that time one in two households had a car, the proportion of respondents conscious of danger to children near their home, was 38 per cent compared with 14 per cent on the Sheffield layouts where car ownership was one in three.

151

Later studies at Woodway Lane, Coventry, by the Ministry of housing and local government's Research and Development Group

showed that whereas almost 90 per cent of tenants liked the separated layout most children still played on the roads and that garage courts were a hive of activity, whilst the greenways were little used.

b) Location of Children

The location of children's play is shown in Figure 10.23 and observations carried out by the Ministry ¹⁵² are illustrated for purposes of comparison. As can be seen only at Campshill (47 per cent) were children observed on the roads in the same proportion as Woodway Lane (42 per cent). By far the greatest proportion of children seen on the three separated estates were on the pedestrian ways. It is interesting to note that even on a fine dry day over 50 per cent of the children seen on all estates were playing on hard surfaces.

c) Children's Play on Vehicular Areas

At Campshill observations made on the roads and garage courts accounted for 47 per cent of the children and these were the most intensively used spaces in the estate. In addition many games being played in comparative safety on the greens occasionally emptied on to the roads because of their close proximity. Few of the children seen were in the garage courts. This can partly be accounted for because few gardens give direct access on to the courts and partly because the ground surface of the courts is stepped and this discourages ball games. The majority of children were seen on the roads and on the adjacent pavements. The presence of many parked cars made children's play even more

hazardous as a child's field of vision is more easily restricted.

In addition friction was being caused between tenants over the possibility of damage to parked cars from footballs and cricket balls. Although these dangers appeared real from the observations, parents did not appear to be worried or think the estate unnecessarily dangerous, except at Chells Way. The three separated layouts were very similar in the proportion of children seen on the roads, ranging from 16 per cent to 17 per cent.

At Sishes End (15.9 per cent) children's play in the culs de sac appeared more hazardous as the compact grouping of garages gives poor sight lines and cars often used to travel quite fast. Parents were aware of and concerned by this danger. The culs de sac at Fairlands (16.5 per cent) appeared safer largely because many of the planned garages had not yet been built. The empty sites for these garages created ideal football pitches, and the problems of damage to vehicles was again mentioned. Parents generally seemed conscious of the dangers of traffic on Archer Road, but thought the garage courts safe and were tolerant of the use of them as children's play areas. Children were not seen playing in Archer Road although goal posts drawn on gable walls were evidence that play did occur there.

Trotts Hill (16.6 per cent) was unusual in that no children were ever seen in some culs de sac, the majority of activity being contained within two. These two culs de sac were unfortunately areas of intense parking activity. Mothers at Trotts Hill also

mentioned the problem of the back gate from the garden being opened by tradesmen and small toddlers let into the roads without their realising it.

d) Pedestrian Ways

Pedestrian paths, apart from providing access to other spaces, are in their own right intensively used play areas. Except at Campshill they accounted for the largest proportion of children observed. Most of the children seen on the pedestrian ways were under 11 years old. Many small children were seen playing on the footpaths immediately outside their houses, treating this area simply as an extension of the front garden. The suitability of hard surfaces for tricycles and pedal cars is an important consideration.

Because of the close proximity of pedestrian ways to houses on the separated layouts, children's play was a source of nuisance to some tenants, particularly old people. The underpasses were also favourite gathering places for children, the main attraction presumably being that they could be out of sight of adult eyes. This produced problems, particularly for the tenants in the immediate vicinity. One man at Fairlands, was tolerant of this although, from a noise point of view, as he said - "it was almost like having the children playing in your living room!" The reason given for his tolerance was that "there were no parks for the kids to go to".

e) Front Gardens

It was originally intended to include the usage of back gardens in the survey, but owing to the privacy achieved within the layout it was impossible adequately to observe activities there. Observations

were made however of the number of children in the front gardens of houses. These small areas were quite well used on all estates and although not secure they do give small children the opportunity to play in contact with others, whilst allowing mothers some degree of supervision.

f) Public Open Space

The remaining public open space consists of grassed or planted areas. It was in the use of these areas that children's play seemed to cause the greatest friction between tenants. Relative to their size grassed areas were little used, and because of the attitudes of some of the tenants who saw them as being of value mainly for their appearance, they were a constant source of disputes. It was not uncommon for tenants to hold the view that the greens on to which their houses looked were for their own exclusive use, and they would dissuade children whose houses were in less fortunate positions from using them. With few exceptions, use of the areas at Campshill, because of the close proximity of through roads to them, were more limited in their use. The exception occurring at Fairlands was one intensively used green fronting on to Archer Road, and footballs (closely followed by small boys) were often on the road. It is interesting to note that this green was intensively used because although one of the smallest, it had a row of three storey houses with very small gardens fronting on to it.

g) Play Areas

As the play areas used by children on the four estates were not all within the walk rounds, separate observations were made.

The play areas were not well frequented; for instance no observations were recorded at all in the Trotts Hill play area.

(The adjacent main pedestrian way was constantly in use). The play areas at Sishes End and Fairlands were more frequently used, particularly by older children, mainly by the more organised and active games.

Many children were seen playing in small sheltered spaces and more opportunity for this in better relation to the play spaces would seem desirable. It was also obvious that the level of activity of children's play fell as one moved further away from the main pedestrian ways. It would seem essential therefore that play areas were integrated as far as possible in the main circulation system.

h) Tenant Reaction

Tenants on the three separated estates felt that the layouts had positive advantages over traditional layouts. They did however seem more concerned over the safety of their children anyway. Parents at Campshill thought they were badly off for children's play provision and that there was nowhere for them to go.

On all estates mothers wanted more equipped playgrounds for their children, and frequently drew comparisons with London parks.

Children's play was also frequently mentioned as a source of

nuisance on all the estates, particularly to those without children and to old people.

3) Summary.

The three separated estates were working better than Campshill from the safety aspects of children's play. Not only were 30 per cent less children observed on the roads than at Campshill, but it was apparent that there was less risk when actually on the road. The separated layouts were also working better than Woodway Lane, and this can probably be explained as much by the differences in design of the layouts as by the lower densities and level of car ownership.

It seems impossible to prevent all children from playing on roads or culs de sac and therefore the design of the vehicular side of the layouts should acknowledge this and take it into account. In particular more attention should be paid to sight lines within the garage courts. Children's play on the greens in front of the houses was however a major cause of dispute between tenants. There was a demand on all layouts for more equipped playgrounds within the housing area.

The use of private gardens on all estates, irrespective of their size followed the same pattern. In general children's play was given priority over gardening. Only at Campshill did the gardens appear large enough to cope with outdoor hobbies (e.g. aviaries). Tenants at Campshill thought the gardens on more recent layouts too small, but tenants at Sishes End and Fairlands

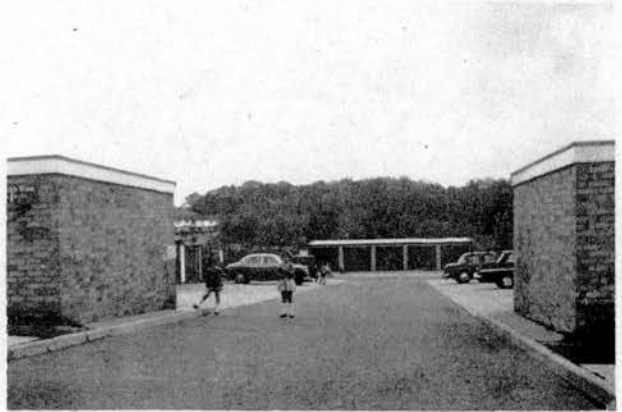
3. CHILDREN'S PLAY

A



Fairlands - ballgame spills onto roadway.

B



Fairlands - garaging not fully developed. Play relatively safe, except at cul de sac entry.

C



Fairlands - large playground for organised ballgames.

D



Fairlands - paved court provides play surfaces and seats for toddlers.

E



Fairlands - underpass used for play as children return home from school.

F



Trotts Hill - play on pedestrian way beside large grassed area. Soil spills onto path.

were satisfied; only at Trotts Hill did there appear to be a majority feeling that the gardens were too small.

Privacy was commented upon frequently and thought to be well provided for on all three separated layouts. Although there is a greater degree of overlooking at Campshill, no criticism was received. The uniformity of garden size within a layout also appears questionable as dwellings of differing family capacities would appear to require different garden sizes. This is substantiated by the study of J. A. Cook¹⁵³ on gardens on housing estates; Cook found that for instance families with three small children require an appreciably larger garden than those with two.

Outdoor service activities.

1) Tradesmen.

Tradesmen encountered few difficulties at Campshill apart from the problem of parked cars on the roadways. Door to door deliveries were easy, quick and straightforward, and called for little or no reversing. On the newer separated layouts most drivers had difficulty at first in finding their way around, but through use were well acquainted with the system. The culs de sac system is somewhat tedious for regular door to door deliveries, and drivers of delivery vehicles were only too keen to make this criticism. Large lorries, such as the coal lorry encountered at Fairlands, are difficult to turn at the end of a cul de sac, and drivers tended to reverse back down the whole

length. The refuse collection lorry was particularly noticed in this respect. The G.P.O. parcels were delivered by van to the garden side of the houses, and this presented difficulties where people were out at work, and dogs were left in gardens. Sishes End was thought to be the most inconvenient of the estates studied in this respect.

The bread delivery driver interviewed in Trotts Hill commented that traditionally he would tuck half a dozen loaves under his arm and jump over the fences between houses, but at Trotts Hill it required a special journey for every house delivery. He did not think reversing was particularly hazardous as few children were around in the culs de sac when he was making his deliveries. A furniture removal van in Trotts Hill was seen reversed half into a garage hardstanding, with the remaining length completely blocking the cul de sac for some time. A large delivery lorry at Sishes End shop caused similar congestion.

Procedure for the daily delivery of milk varied from milkman to milkman. In some cases the truck was parked in the cul de sac and milk delivered to the back doors through the gardens. In other locations a hand cart containing two or three crates was used to deliver to front doors along the pedestrian ways. The use of these carts increased as the possibility of gaining access to the footways increased where there were short lanes, as at Fairlands and Sishes End.

2) Emergency Vehicles.

In the opinion of the local police the different layouts do not give

rise to differing crime rates. Each area was patrolled by one policeman, either on foot or on a moped, supported by a touring Panda Car, and in touch by radio. Routine checks were far easier to make in Campshill, and at no time there, was the patrolman far from his bicycle or vehicle. Patrolling the cul de sac layouts was more involved and difficult, particularly after the street lights were extinguished at midnight. Reversing among parked cars was hazardous in the dark, and policemen were reluctant to leave the patrol car unattended for long to make routine checks in the pedestrian footpath areas.

The Fire Service requires its drivers to pass an examination in knowledge of street names and location, but even so they experience difficulty in the newer separated layouts. At night time one man leaves the fire engine and uses a torch to scrutinise the numbers on the street boards to ensure the engine enters the correct cul de sac. The long vehicles now in use require a time consuming reversing procedure if an incorrect turn is taken. At Campshill the long vehicle also has difficulty negotiating the parked cars, and where there are flats over entrances to garage compounds lengthy hoses have to be run out to fight fires in these rear areas. The engines carry 400 gallons of water, sufficient for most domestic fires, but hydrants can be 200 feet from dwellings, and sometimes situated under cars in parking areas. Most of the comment made by the Police and Fire Service relevant to circulation were echoed by the Ambulance Service. A special difficulty in the layouts such as Trotts Hill was that it was often impossible to carry

a horizontal stretcher out of the back door of a house directly to the ambulance. The positioning of garden stores outside the back door and the internal stairs facing the front door meant that the stretcher had to be taken out of the front door and through the pedestrian areas until a way back on to the road could be found.

3) Site Maintenance.

In all four estates the maintenance of public open space is carried out by Stevenage Urban District Council. The tenants are responsible for the upkeep of rear and (where provided) front gardens. Throughout the estates the standard of maintenance is high and the apparent incidence of vandalism is low. A common problem on all estates is encountered in disposal of garden rubbish and grass cuttings from landscaped areas. The difficulty of clearing snow from the pedestrian paths in the separated layouts was also mentioned as a particular problem by roadsweepers in Fairlands. They found that they could only clean the main paths and that the tenants did not always undertake any responsibility for clearing other paths.

Difficulties were encountered in the separated estates in the maintenance of street lighting which were not apparent in Campshill. The Eastern Electricity Board maintenance vehicle conduct an inspection of street lights in Sishes End, Trotts Hill and Fairlands on Tuesday evenings and return on Wednesdays to replace faulty or broken lamps. Lamps in culs de sac are repaired from a tower wagon but those in pedestrian ways require attendance by two men to carry ladders, lamps and tackle. This is an acute problem at

Trotts Hill where there are few connections from roads to pedestrian ways.

4) Summary.

The main problem encountered at Campshill is caused by large service vehicles parked in the road making circulation difficult and often hazardous. Tradesmen all used the front door and service vehicles parked in the roads. In the three separated estates both front and back door are used for delivery, depending upon their convenience. Tradesmen are of the general opinion that it takes them longer to deliver in these estates. The tradesmen making regular deliveries had only initial difficulty in finding their way around the estates. The main tenant criticism is that the use of the back door by tradesmen reduces both the privacy and security of the garden for them and their children. The standard of maintenance is uniformly high and the main problem unique to separated estates, is clearing snow off pedestrian footpaths.

10.5 CONCLUSIONS

1. The Layout of the Housing Estates.

The traffic separated estates at Stevenage do have positive advantages both in terms of safety for children and increased amenity. Taken collectively they constitute an improvement over Campshill, where conflicts occur when the purposeful circulation activities on the roads coincide with the haphazard nature of children's play and vehicle parking. It should be recognised, however, that the success of a housing estate will

depend as much on its detailed design, as on the strict adherence to traffic separation. The estate at Woodway Lane, Coventry, has been used in the report as an example of a traffic separated scheme that is not working as it was intended. The success of a traffic separated estate will only be achieved by making the pedestrian ways more convenient, following direct and predictable desire lines, rather than the negative approach of providing physical barriers as at Trotts Hill.

On none of the traffic separated schemes have children been prevented from playing on the vehicular areas and it is apparent that complete separation of pedestrians and vehicles is impracticable to achieve. It is rather a question of reconciling the need for children's safety with convenience for adults. The degree to which this is possible will vary from site to site because of specific problems such as the shape of the site, its topography, the surrounding road pattern, and the disposition of local shops and schools.

The desk analysis demonstrates the diversity of space distribution for various functions on the four estates. Generally the area for dwellings and pedestrian ways remains constant, but the areas for private gardens and public open space vary considerably, relative to the degree of car provision. The area allocated to vehicles at Trotts Hill is very high but copes well with the movement and storage of vehicles. The fragmentation of the public open space that results from this does not, however, provide

any spaces large enough, or far enough away, from houses to give opportunity for boisterous games. The grasses and planted areas at Sishes End are, by comparison to those at Trotts Hill, both spacious and usable yet the area allocated to public open space is less than that at Fairlands or Trotts Hill, which are both higher density layouts.

2. Roads, Parking and Garages.

In principle, the separated estates cope with the increased ownership and usage of vehicles. In estates where the separate function of each type of road (local distributor, access, cul de sac) is more clearly defined in the layout, the road network functions better and safety increases. Movement of vehicles in defined local distributors is easier, the scale of the roads gives the pedestrians who may also be using them a very clear notion of the likely result of their careless action. In a six year comparison of reported accidents, both the number of pedestrians injured and the proportion of accidents involving parked cars in Pin Green is less than half that in Chells.¹⁴⁷

It should be recognised that some children will play in the vehicular areas, and, although this should be discouraged, these areas should be made safer for them to do so, by ensuring good sight lines, and possibly by excluding service vehicles from culs de sac. In addition, the safety advantages inherent in a traffic separated layout are pointless if adults and children have to cross peripheral roads, like Chells Way, to reach amenities.

The separated layouts did produce problems relative to vehicular access to dwellings. Tradesmen and visitors arriving in vehicles are guided to 'back garden' gates and problems of privacy and security arise. There is at present a demand for garages from 45 per cent of the families on each of the separated estates and this would appear to confirm the Corporation's present initial garage provision of 50 per cent. The distribution of space for vehicular use varies over the four layouts. The area of road per bed space at Trotts Hill (91 square feet) and Campshill (100 square feet) is approximately twice that at the other two estates. The area for garaging and car parking at Trotts Hill is 100 square feet per bed space. Sishes End is a little less but there is a considerable drop to 40 square feet per bed space at Campshill.

3. Pedestrian Ways.

The network of pedestrian ways on all three estates does not always give the most convenient access to amenities for pedestrians. Apart from indirectness of route, the exposure, drainage and gradients of footpaths were criticised by tenants and unfavourable comparisons made to alternative routes involving the use of roads.

The footpaths, steps and ramps offer considerable opportunity for children's play, although where sited close to dwellings, they give rise to nuisance for some tenants. The majority of children observed at Stevenage were on the pedestrian ways. The pedestrian network would benefit from a review after a period of time and any necessary adjustments made.

4. Common Open Space.

The appearance of the public open space on the traffic separated layouts is appreciated by a large number of tenants at Stevenage. In common with other schemes, however, children's play in this space is a constant source of conflict and difficulty; some people wanting the open space for their children to play on, others simply as something to be preserved and looked at. That public open space fulfils both of these functions should be recognised and areas allocated accordingly. In addition, care should be taken to ensure privacy where public open space adjoins dwellings. This situation should be particularly avoided in the case of old persons and ground floor flats.

The distribution of areas of grass for play should be related to the location of the larger houses likely to contain most children, but too great a concentration of such houses in any one place should be avoided.

5. Children's Play Areas.

Certain observations were made on children's play areas, although this is considered a complex subject, and one worthy of more detailed study. The play areas observed were relatively little used although more extensive surveys would be required to substantiate this.

In general, a system of play areas seems to be required ranging from the very small area located close to the dwellings, to the large adventure playgrounds provided on a neighbourhood basis.

Play areas should be situated in the mainstream of activity, located if possible close to other facilities, and at the junction of routes. They should not be located near old persons' dwellings. The importance of hard surfaces for children's play is also evident from the observations carried out at Stevenage.

6. Private Gardens.

In recent years the size of private gardens has decreased largely in efforts to increase density, but also in the cases of separated layouts, to reduce travel distances. The argument for the smaller gardens on separated layouts has depended upon the close proximity of public open space. Of the four estates at Stevenage, only at Trotts Hill did the tenants consistently comment that their gardens were inadequate. The degree of privacy was considered to be high on all four estates. As this trend towards smaller gardens increases it becomes of great importance to examine the use to which gardens are put, and in addition the space standards required for garden activities. The uniformity of garden sizes with varying house sizes seems questionable as different sizes of families require different space standards.

The three separated estates did have unique problems, associated with gardens that were not evident at Campshill. Although tenants' reaction to the use of the back door by visitors was not unfavourable, some did criticise its use by tradesmen. They felt that this impinged on the privacy of their garden and also on its security for children and pets.

CONCLUDING REMARKS

Although the main emphasis of the study is concerned with developing methods of evaluating housing layouts, in carrying out an examination of organisations involved in housing certain broad conclusions are evident.

Since 1919 successive governments have become progressively more and more involved in the provision, condition and management of housing. New legislation has been continuous, but has always been introduced to meet immediate problems and seemingly never in pursuit of any deliberate philosophy. The one over-riding and elusive object of policy has been to build enough houses of an acceptable standard. For a variety of reasons central government has looked to local authorities to provide a large percentage of the housing programme, the proportion fluctuating with changes in political outlook. The basic conviction that housing is a private responsibility has remained and the development of a sense of national responsibility for housing has only slowly and reluctantly emerged within the last decade.

The effectiveness in practice of any housing policy also depends on the efficiency and capability of the administrative structure, and the majority of the 1,400 or so local housing authorities are ill equipped to carry out the major tasks facing them. Although local authorities have made considerable achievements since 1919 their present nature, administrative structure, boundaries and uneven distribution of resources in relation to needs have inhibited the solution of housing and other social problems.

The provision of housing is only one part of the wider system of economic, social and physical planning, and central government must remain the source of strategic long range planning and in particular of national financial policy. The present framework is no longer relevant to the current situation; needs must be assessed nationally; some housing authorities are quite unable to meet their own needs, and many are trying to meet needs arising elsewhere; building must be organised on a scale large enough to achieve maximum economy; and the efforts of private enterprise

must be co-ordinated within a national plan. The present concentrated urban renewal programme is essentially a task for comprehensive regional planning. Local authorities, as recommended by Redcliffe-Maud and Wheatley, should have greater local autonomy to meet local and regional needs; a point of view supported by the Ministry of Housing in its evidence to the Royal Commission going on to recommend the creation of some 40 'city' regions to replace the present system of local government.

The most significant feature of housing in Britain is its incoherent economic basis. The provision of new housing is divided into sectors which are aided and controlled by central government in different, and frequently conflicting, ways. There is little logical relationship between the policies operated in these different sectors.

As a result major issues facing each sector stem from policies designed to deal with quite different issues in other sectors. The present subsidy system is inadequate and inappropriate to the comprehensive approach that is required if solutions to housing problems are to be effected. The proposition that subsidies should be attracted to families rather than houses has much to commend it. The advantage of subsidies to families would make it possible for all sectors of the community to have choice between expenditure on housing, and also between alternative forms of tenure.

With the huge decline in the privately rented sector the need for developing alternative forms of tenure is of great importance. Other countries, mainly by adopting systems which ease the task of voluntary housing organisations during their early stages, have been able to encourage considerable growth in their contribution to the overall housing programme. If a better system of financial assistance were to be evolved the housing society and tenant co-operative movement could be developed to offer attractive alternative forms of tenure on a large scale. If a reasonable range of choice is to be kept open alternative forms of tenure need encouraging.

The importance of the quality of new housing cannot be over emphasised. More than most other things it touches upon many facets of human existence. To both the individual and the state the high capital cost and durability of housing make it essential that the best possible value for money is obtained. More than any other

building form the quality of housing will influence the overall quality of the built environment. If the quality of housing is to be improved, its design needs to become a more conscious and knowledgeable process (and therefore a more certain and successful one) it seems necessary that methods of appraising all aspects of the housing environment should be developed. Housing, like the majority of contemporary design problems is characterised by its complexity. In the past architects have been concerned with the 'one off' jobs where feedback from completed works was non-existent and of little further value. Pace is, however, rapidly accelerating and mistakes are made not once, but many times, so we must learn quickly, and build up knowledge in a way that can be re-applied. Feedback necessary to promote expertise and understanding in design is slow and only available to a few large organisations with continuous housing programmes. This study seeks to improve the quality of housing by developing standardised methods of evaluating housing layouts, and indirectly to provide an aid for the designer in improving his performance.

The original intention of the thesis was to compare the performance of the designers in each of the main housing sectors and to see how they differed. However a pilot study, with a representative sample of designers, showed that they were very fluid in their movement between employment in all the design sectors and that there was no particular type of architect likely to occupy this role in the different design situations. What did emerge from these tests was that there was general agreement amongst designers about what constituted quality in housing and in their personal design objectives. In addition the designers displayed an ignorance of published information on housing layouts. Since the pilot study was completed the Sociological Research Section of the Ministry of Housing and Local Government have carried out more detailed investigations, into architects design priorities.⁽¹⁾ By means of a postal survey 118 designers in the public housing sector were questioned about their ranking of design criteria. The results of this larger sample, although more detailed, concur with the results of the small sample tested in this Study. A worthwhile further

(1) A draft report has been compiled under the heading 'Survey of Architects Opinion, June 1970' and is available from the Ministry of Housing and Local Government.

investigation could be carried^{out}/in the same amount of detail with large groups of subjects working in the private housing sector. As a result of the finding of the pilot study the idea of developing techniques to measure the performance of designers in performing controlled tasks was therefore modified and the main emphasis of the thesis became to examine the performance of the designer through the success of completed schemes. It becomes evident that performance of the designer cannot be isolated from his interaction with the constraints of his design organisation, brief, site conditions, etc. and the only possible way of measuring this total performance is through a comprehensive evaluation of completed schemes.

The latter part of the thesis is therefore concerned with one practical way of improving both the quality of the built environment and the performance of the designer through the development of the feedback stage of design activity. The quality of a housing area depends upon the extent to which it satisfies the requirements of its occupants, and its assessment provides a measure of the degree to which these requirements have been satisfied. To assess this quality requires the establishment of a range of descriptive procedures that enable the numerous variables and characteristics of the completed housing areas to be evaluated. Despite the accumulation of a considerable body of knowledge about the process of designing housing schemes, it is unevenly distributed and there are few commonly accepted or clearly formulated theories which exist between these variables and characteristics. What is suggested is a standardised and externalised method of appraisal and measurement that can become the central activity in establishing a reservoir of housing experience that could be readily accessible to designers in all sectors. Each appraisal and measurement would add to the reservoir of information until invalidated by changes in the overall situation. In this way design experience would grow in a systematic manner and become accessible and transferable between all designers. Designers experienced in housing layout acquire some understanding of the relationships mentioned above but this is seldom explicit and not easily explained or communicated. For designers new to the housing field the proposals can provide an opportunity for rapidly exploring a comprehensive range of housing layouts which can be selected

with characteristics that closely relate to their own current design problem or brief. In addition, on the basis of information obtained by appraisal and measurement of buildings in use, modified objectives can be formulated as realistic goals for designers of similar projects.

The framework for measurement and appraisal developed in the study combines the use of new and existing techniques. The case studies demonstrate some of the techniques involved and the sort of information that can be obtained. To implement these proposals requires the establishment of a Housing Intelligence Service that can co-ordinate the evaluation of housing schemes so that all the work that is done in housing in the country is regarded as a subject for study. Rapid observations on the physical, economic, social and technical aspects of housing in all sectors need to be made and the results made readily and rapidly accessible to designers. Since the completion of this study the Ministry of Housing and Local Government have produced a computer programme (LUCS) which can evaluate housing layouts in statistical terms. Developed by John Noble and John Turner this programme enables very large numbers of alternative housing layouts to be rapidly evaluated in terms of two characteristics - density and cost. Although at an early stage the programme promises much and if developed to include more elusive aspects of housing could become the basis for a housing intelligence bank. Whilst the advantages of the bank being located within central government machinery are attractive, for example it would have access to information already collected and would be associated with an existing group of high quality research workers, there are disadvantages. To be effective the bank must be comprehensive and cover all sectors of housing. Neither of the two major political parties are likely to allow intervention by government departments with the private sector. Yet it is this sector which contains much deplorably poor quality housing produced under quite different constraints to those that exist in the public sector. A fully operative housing intelligence bank would provide the basis for a large scale sampling of housing in all design sectors, which would be to the mutual advantage of all organisations involved in housing. If an active research body, independent and with access to expertise in all the fields concerned, could be established and directed along lines that would produce

short term as well as long term results, a tremendous amount could be achieved very quickly.

Finally, with so much emphasis placed on improving the feedback phase of design, it is worth recording here the response to the publication of the final case study described in Chapter 10. To be effective, and more than academic exercises, the results of such investigations must be communicated to designers. The general lack of knowledge of designers of recent studies into housing layouts was discovered during the pilot study stage. It was not known, however, whether this was due to the designers reluctance to search for and digest available information, or whether the information that was available was not in a form easily comprehended by designers. To shed some further light on this therefore, the reaction of the architects in Stevenage Development Corporation to the findings of the case study was sought, and in addition a record was kept of the distribution of this study in its final report form.

The findings of the case study were discussed with the architects in Stevenage Development Corporation at a series of meetings and a response obtained from them. This exchange was so fruitful, particularly in gaining insight into the detailed design decisions that determined the form of the final layouts, that a summary of the comments of these architects was incorporated as an appendix in the final version of the published report. A model brief for a housing layout was jointly produced, which incorporated proposals to counter defects illustrated in the report but which was realistic in that it was within the present design constraints imposed by the Development Corporation. In practice the implementation of many of the suggestions contained in the report conflict with each other, and in this situation there was disagreement amongst designers in the relative value they attached to implementing the different suggestions. Nevertheless, all the designers displayed enthusiasm for the availability of this sort of information, and if this evidence can be considered typical, there is no unwillingness on the part of designers to use feedback of this kind. The designers themselves had not made any attempt to gain first hand feedback from estates themselves, and complained that although machinery existed for tenants comment to reach them via the Housing Manager's department

they rarely did. Considering the maximum distance of $2\frac{1}{2}$ miles from the Development Corporation offices to any of the four estates there was displayed a general lack of detailed knowledge by the designers of all the estates.

A final report of this study was published by Codicote Press for Stevenage Development Corporation. The report was sold through the post and was available from both the Architecture Research Unit and Stevenage Development Corporation. The only form of publicity sought was through reviews in both the national daily and the architectural and planning press. An initial printing of 1000 copies was made based on the previous knowledge of both organisations.

To date 973 copies have been distributed, of which 33 were distributed free for review purposes. In addition 183 copies were ordered by organisations abroad, and 27 through booksellers (and therefore their eventual destination not known).

Of the remaining 730 copies, 71 per cent went to organisations actively involved in housing design. It was in the distribution of these amongst the different design sectors that the greatest interest lies. Although the investigation was into 4 layouts in one single town its main concern was with a density range and type of layout (traffic separated) that is found in all design sectors and has been a controversial topic arousing quite strong feelings both for and against it.

Organisations in the public sector, who ordered 50 per cent of the copies, accounted for the greatest single demand. Some 16 per cent of the copies went to private architectural practices and a further 5 per cent to builders.

The remaining 29 per cent went to both students and staff at teaching organisations (14 per cent), to independent and government research establishments (9 per cent) and to libraries (6 per cent).

Assuming that each copy sold went to a separate organisation (which was not checked) the results of this investigation reached a total of 445 design organisations. Considering the 1400 public offices, 3,500 private practices and approximately 1000 builders employing their own design organisation, these circulation figures are not encouraging. It is difficult to assess whether a more effective form of

publication would have been through an architectural magazine. A higher circulation would have been achieved but at a reduction in detail of the findings. This sort of problem together with the reaction to the report of all the organisations and individuals that received it is the subject of a separate study into the application of architectural research to practice which should give an indication as to how effectively its findings have been communicated to designers generally.

APPENDIX ONE

Housing Appraisal and Measurement Form

- 1.00 PROGRAMME
 - 1.01 Client
 - 1.02 Architect
 - 1.03 Contractor
 - 1.04 Timetable
- 2.00 STATUTORY CONTROLS
 - 2.01 Building
 - 2.02 Planning
 - 2.03 Standards
 - 2.04 Third Party
 - 2.05 Statutory Rights
- 3.00 SITE
 - 3.01 Area
 - 3.02 Location
 - 3.03 Previous Use
 - 3.04 Topography
 - 3.05 Orientation
 - 3.06 Travel Distances
- 4.00 CLIMATE
 - 4.01 Region
 - 4.02 Meteorological Stations
 - 4.03 Air Movement
 - 4.04 Humidity
 - 4.05 Radiation
 - 4.06 Temperature
 - 4.07 Precipitation
 - 4.08 Atmospheric Pollution
 - 4.09 Noise
 - 4.10 Obstructions
- 5.00 SPATIAL
 - 5.01 Category of Layout
 - 5.02 Areas
 - 5.03 Quantities
 - 5.04 Population
 - 5.05 Dwellings Description
 - 5.06 Travel Distances
 - 5.07 Services
 - 5.08 Overlooking
- 6.00 PHYSICAL
 - 6.01 Thermal
 - 6.02 Aural
 - 6.03 Visual
 - 6.04 Olfactory
- 7.00 ECONOMIC
 - 7.01 Tender
 - 7.02 Contract
 - 7.03 Capital Cost
 - 7.04 Fees
 - 7.05 Maintenance Cost
- 8.00 TECHNICAL
 - 8.01 Elemental Description
 - 8.02 Constructional System
 - 8.03 Materials
 - 8.04 Plant and Equipment

- 9.00 ACTIVITIES CHECK LIST
 - 9.01 Site Layout
 - 9.02 Dwelling Design
- 10.00 DESIGN TEAM/CLIENT ORGANISATION BACKGROUND
 - 10.01 Architect
 - 10.02 Client
 - 10.03 Consultants
 - 10.04 Design Category
 - 10.05 Design History
- 11.00 DESIGNER/CLIENT IMPOSED CONSIDERATIONS
 - 11.01 Brief
 - 11.02 Programme
 - 11.03 Site
 - 11.04 Climate
 - 11.05 Spatial
 - 11.06 Physical
 - 11.07 Economic
 - 11.08 Technical
 - 11.09 Activities
 - 11.10 Organisations

1.00 PROGRAMME

1.01 Client

1.02 Architect

1.03 Contractor

1.04 Timetable

1.01 CLIENT

1.02 ARCHITECT

1.03 CONTRACTOR

1.04 TIMETABLE

Client decides to build

--	--

Architect appointed

--	--

Design completed

--	--

Out to tender

--	--

Contractor appointed

--	--

Site works commence

--	--

Buildings complete
Handover date for final
dwellings

--	--

Siteworks complete

--	--

Occupation date

--	--

Date of Analysis

--	--

INCEPTION TO OCCUPATION (A - I)

INCEPTION TO COMPLETION OF DESIGN (A - C)

INCEPTION TO BUILDING WORK COMMENCES (A - F)

CONTRACT PERIOD (F - H)

if different from above (F - G)

BUILDING COMPLETION TO OCCUPATION (G - I)

DATE OF ANALYSIS TO INCEPTION (K - A)

DATE OF ANALYSIS TO BUILDING COMPLETION (K - G)

DATE OF ANALYSIS TO OCCUPATION (K - I)

2.00 STATUTORY CONTROLS

2.01 Building

2.02 Planning

2.03 Standards

2.04 Third Party

2.05 Statutory Rights

2. 01 BUILDING CONTROLS

Public Health Act 1936

☐

Public Health Act 1961

☐

Building Regulations (Scotland)

☐

Building Regulations 1965 (England and Wales)

☐

London Building Acts 1930, 1935, 1939

☐

Additional Local Building Acts

☐

Description of Additional Local Building Acts

--	--

Building Approval Granted to Initial Application

☐

Building Approval Granted following Appeal

☐

Description of amendments to Initial Application

Any Relaxations or Dispensations of Building Regulations

☐

Description of Relaxations or Dispensations

2.02 PLANNING CONTROLS

Planning Approval Granted to Initial Application

Planning Approval Granted upon Appeal



Any Conditions imposed with Approval.



Descriptions of conditions imposed

[illegible]

Any Additional Planning Controls other than Local Authorities



Description of such Controls

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

2.03 STANDARDS

Are Mandatory Amenity Standards for Local Authorities in England and Wales complied with

Which recommended Amenity Standards for Local Authorities in England and Wales are complied with

Is the contractor a NHBRC member

Blank lined paper with horizontal ruling lines.

2. 04 THIRD PARTY

Have any other Conditions been imposed
by a Third Party

Description of such Conditions

Has the Lending Agency imposed any
Condition other than Financial

Description of such Conditions

[illegible]

3.00 SITE

3.01 Area

3.02 Location

3.03 Previous Use

3.04 Topography

3.05 Orientation

3.06 Travel Distances

3.01 AREA

What is actual Area of site

--

What is length of PERIMETER of site

--

3.02 LOCATION

What is LATITUDE of centre of site

--	--

What is LONGITUDE of centre of site

--	--

What is height above SEA LEVEL of centre of site

--

3.03 PREVIOUS USE

What was previous use of site

AGRICULTURAL	
RESIDENTIAL	
INDUSTRIAL	
COMMERCIAL	

3.04 TOPOGRAPHY

Was site FLAT

completely	
partly	

Was site SLOPING

completely	
partly	

What was degree of SLOPE

--

3.05 ORIENTATION

What was aspect of SLOPE

N	
NNE	
NE	
SNE	
E	
ESE	
SE	
SES	
S	
SSW	
SW	
SWW	
SW	
W	

3.06 TRAVEL DISTANCES

Centre of site to

Public Transport	
Public Open Space	
Shopping Centre	
Shops	
Primary School	
Secondary School	

4.00 CLIMATE

4.01 Region

4.02 Meteorological Stations

4.03 Air Movement

4.04 Humidity

4.05 Radiation

4.06 Temperature

4.07 Precipitation

4.08 Atmospheric Pollution

4.09 Noise

4.10 Obstructions

4.01 REGION

Climatic Region

--

4.02 METEOROLOGICAL STATIONS

What are 3 nearest meteorological office stations

DISTANCE FROM SITE

Station 1

2

3

4.03 AIR MOVEMENT

STATIONS

SITE	1	2	3

Prevailing Winds

Wind Roses

4.04 HUMIDITY

Vapour Pressure Internal	
External	
Moisture Content Air	
Materials	

Moisture Balance

--

4.05 RADIATION

Sky Brightness Gradient	
Average Hours Bright Sunshine	
Angles of Sun	
Hours of Sunrise to Sunset	
Number of Overcast Days	
Number of Clear Days	

4.06 TEMPERATURE

Averages of Temperature

Temperature Range

SITE	1	2	3

4.07 PRECIPITATION RAINFALL

Driving Rain Index
(product of windspeed
and rainfall)

Mean Incident
Angle of Rain

Average of Rainfall

Average of Snow

4.08 ATMOSPHERIC POLLUTION

4.09 NOISE

Description and Distance from
Centre of Site to Noise Sources

--

4.10 OBSTRUCTIONS

Description of Surrounding Obstructions

--

Reflection Factor

--

Shape

--

5.00 SPATIAL

5.01 Category of Layout

5.02 Areas

5.03 Quantities

5.04 Population

5.05 Dwellings Description

5.06 Travel Distances

5.07 Services

5.08 Overlooking

5.01 CATEGORY

CATEGORY	NUMBER OF STOREYS												
houses													
maisonettes (walk up)													
maisonettes (lifts)													
flats (walk up)													
flats (lifts)													
NO. OF SEPARATE BLOCKS													

NUMBER OF DWELLINGS IN FORM OF

detached)	
semi-detached)	walk ups
terraced)	
cluster)	
point blocks)	liftovers
slab blocks)	

Are garages provided as

☐

LOCK-UPS

QUANTITY

SEPARATE

GROUPED

☐

CAR PORTS

SEPARATE

GROUPED

☐

HARDSTANDING

--

5.02 AREAS

What is the GROSS AREA of the site
includes all land covered by dwellings,
gardens, roads, shops, primary schools.
Excludes industrial land, secondary
schools, town parks and town centres.

--

What is the NET AREA of the site
includes dwellings, gardens,
playgrounds, parking areas, and
half width of surrounding roads
(up to 20' maximum).
Excludes local shops, primary schools
and most open areas.

--

What is the area of ROADS
Include all carriageways and turning spaces
for normal vehicular circulation, ramps and
roads within garage areas.

--

What is the area of PARKING
Include hardstandings, wash bays and all
vehicle parking bays except lock-up garages.

--

What is the area of GARAGES
Include all lock-ups, car ports, motor cycle
stores.

--

What is the area of PEDESTRIAN CIRCULATION
Include all hard areas including stairs, ramps,
access balconies but excluding play areas and roads.

What is the area of PLAYGROUNDS
Include all areas specifically designated for
children's play .

What is the area of PUBLIC OPEN SPACE
Include communally shared soft areas,
whether accessible or not, including all
areas of planting.

What is the area of PRIVATE OPEN SPACE
Include all private gardens, patios, terraces
and balconies.

What is the area of DWELLINGS as
measured on the ground.

What is the total area of DWELLINGS
Include ground floor as measured previously.

What is the area of ANCILLARY accommodation.
Include clubrooms, shops, sub-stations, tank rooms,
storage where separate from dwelling, drying rooms,
plant and pump rooms.

What is PERIMETER of all dwellings
Exclude length common to two dwellings.

What is PERIMETER of site.

What is length of ROADS measured on centre line.

5.03 QUANTITIES

What is the total number of DWELLINGS

What is the total number of BEDSPACES

What is the total number of HABITABLE ROOMS

What is the number of HOUSE TYPES
For each type complete 5.

DWELLING TYPE										
BEDSPACES										
HABITABLE ROOMS										
DWELLINGS										
GARAGES										
GF ACCESS										
LIFTS										

What is the total number of GARAGES
Include all lock ups, car ports.

What is the total number of GARAGES
adjacent to the dwelling.
Adjacent meaning within the dwelling plot
or on the periphery of the plot.

What is the total number of GARAGES
contained either under or above normal
ground level.

5.04 POPULATION

PROJECTED POPULATION

MAXIMUM TOTAL POPULATION	
HUSBANDS	
HOUSEWIVES	
CHILDREN (+10)	
CHILDREN (- 10)	

Number of separate households

5.05 DWELLINGS DESCRIPTION

Complete one form per dwelling type

1.00 OVERALL AREAS

ARCHITECTS TYPE NUMBER OR SYMBOL

1.01 SINGLE STOREY HOUSE (B)

Occupants	1	2	3	4	5	6
Minimum OA	320	480	610	720	810	900

Actual OA

Min. Storage	30	40	45	50	50	50
--------------	----	----	----	----	----	----

Actual Storage

1.02 TWO STOREY HOUSE : CENTRE TERRACE

Occupants	1	2	3	4	5	6
Minimum OA	-	-	-	800	910	990

Actual OA

Min. GF Storage				25	25	25
-----------------	--	--	--	----	----	----

Actual GF Storage

Additional Min. Storage				25	25	25
-------------------------	--	--	--	----	----	----

Actual Additional
Minimum Storage

1.03 TWO STOREY HOUSE : SEMI OR END TERRACE

Occupants	1	2	3	4	5	6
Min. OA	-	-	-	770	880	990
Actual OA	-	-	-			
Min. GF Storage	-	-	-	25	25	25
Actual GF Storage						
Additional Min. Storage				25	25	25
Actual Additional Minimum Storage						

1.04 THREE STOREY HOUSE

Occupants	1	2	3	4	5	6
Min. OA	-	-	-	-	1,010	1,050
Actual OA						
Min. GF Storage					25	25
Actual GF Storage						
Min. Additional Storage					25	25
Actual Minimum Additional Storage						

1.05 MAISONETTE

Occupants	1	2	3	4	5	6
Minimum OA	-	-	-	770	880	990
Actual OA						
Min. Storage Inside				15	15	15
Actual Min. Storage Inside						
Min. Storage Outside				20	20	20
Actual Min. Storage Outside						

1.06 FLATS

Occupants	1	2	3	4	5	6
Minimum OA	320	480	610	750**	850	930

Actual OA

Min. Storage
Inside

8	10	12	15	15	15
---	----	----	----	----	----

Actual Min.
Storage Inside

Min. Storage
Outside

20	20	20	20	20	20
----	----	----	----	----	----

Actual Min.
Storage Outside

**720 if balcony access

2.00 ADDITIONAL SPECIALISED STORAGE AREAS

2.01 FUEL : HOUSES

Minimum Fuel Storage for 1 Appliance

12

Minimum Storage for 2 Appliances
(or Rural Areas)

Actual

2.02 FUEL : FLATS AND MAISONETTES

Minimum Storage

9

Actual

2.03 KITCHEN

Minimum Installed (Cubic Foot) Storage

80

Actual

2.04 BEDROOM

Minimum 2'0" per occupant, except in
Main Bedroom, and Minimum 1'9" deep

Actual

2.05 LINEN

Is there a Linen Cupboard

Actual size

5.06 TRAVEL DISTANCES

TRAVEL DISTANCES

MAXIMUM

AVERAGE

DWELLING TO	HORIZ. VERT.		HORIZ. VERT.	
family car				
visitors' car				
refuse bin				
refuse vehicle				
delivery van				
emergency vehicle				
public transport				
public open space				
shops				
primary school				

TRAVEL DISTANCES

DWELLING TO

MAXIMUM

AVERAGE

post box				
telephone box				

5.07 SERVICES

Category of REFUSE DISPOSAL

manual/dust bins

☐

manual/paper sacs

☐

mechanical system

☐

Frequency of collection

Are any in-sink disposal units provided

How many shops are there within site

How many POST BOXES are there within the site

How many public TELEPHONE boxes are there within the site

5.08 OVERLOOKING

OVERLOOKING DISTANCES

MINIMUM

AVERAGE

LIVING ROOM TO

Living Room		
Bed Room		
Private Open Space		
Road		

6.00 PHYSICAL

6.01 Thermal

6.02 Aural

6.03 Visual

6.04 Olfactory

Description of HEATING SYSTEM by dwellings

DWELLING TYPE							
FUEL	Solid						
	Oil						
	Gas						
	Electricity						
SYSTEM	Warm Air						
	Radiator						
	Thermal Storage						
	Independant Appliances						
OPEN FIRES	How many open fires						
	Can they burn smokeless fuel as initially installed						

PERFORMANCE	Is the system capable of heating the kitchen and circulation areas 55° and the living areas to 65° when the outside temperature is 35°.					
	Is the equipment as installed capable of heating the bedrooms to 65° when the outside temperature is 35°.					
	Is the bathroom heated.					
	Is there a heated towel rail in the bathroom.					
	Is the water heated by the system.					
	Is an immersion heater provided.					

Does the THERMAL INSULATION conform to model
Byelaw 51A

What is the average 'U' value of external walls

What is the area of external walls

What is the average 'U' value of party walls

What is the area of party walls

What is the average 'U' value of roof

What is the area of the roof

What is the area of single glazing

What is the area of double glazing

BACKGROUND NOISE LEVEL GRID

LOCATION OF STATION ON SITE									
DESCRIPTION OF NOISE									
LIN									
A									
B									
C									
FREQUENCY ANALYSIS									
31.5									
63									
125									
250									
500									
1000									
2000									
4000									
8000									
16000									
31500									

Description of noise sources within site and distance from dwelling types

DESCRIPTION

DWELLING TYPES

MIN. AVE.

Distance from A class road or Motorway to centre of site									
Distance from Railway Line to centre of site									
Is the site on airline route									
Distance from airport to centre of site									
Noise in dwellings									
DWELLING TYPE NO.									
LIN									

6.03 VISUAL

Does the layout comply with B.S.CP3
Chapter 1 (Daylight and Sunlight)

It should be possible for sunlight to reach the living room of a house for a period of at least 1 hour, at some time of the day, for ten months of the year.

Do any living/dining rooms face NE to NW only

How many gardens are on SE to SW side of dwelling they belong to.

DWELLINGS COMPLYING WITH SCOTTISH BUILDING REGS. (SUNLIGHTING)

[illegible][illegible]

6.04 OLFACTORY

Are there any obnoxious SMELLS produced within the site.

☐

Such as smells from shops
smells from plant

DESCRIPTION OF SOURCE	DISTANCE FROM DWELLING					
	TYPE					

Are any obnoxious smells produced in the vicinity of the site

☐

DESCRIPTION OF SOURCE	DISTANCE FROM CENTRE	
	OF SITE	

Does the refuse disposal system produce any smells

☐

7.00 ECONOMIC

7.01 Tender

7.02 Contract

7.03 Capital Cost

7.04 Fees

7.05 Maintenance Cost

7.01 TENDER

TYPE OF TENDER

Competitive open	
Competitive select	
Negotiated	
Package deal	

Date of Tender

--	--	--

Number of Tenders received

--

Was accepted Tender the lowest

--

7.02 CONTRACT

FORM OF CONTRACT

Direct Labour	
RIBA with Quantities	
RIBA without Quantities	
Own Contract	

FLUCTUATIONS CLAUSES

With standard clauses of contract in full	
With fluctuation clauses for labour only	
With fluctuation clauses for materials only	
Firm price	

7.03 CAPITAL COST

Total contract cost

DESCRIPTION	DWELLING TYPE									
SUBSTRUCTURE										
SUPERSTRUCTURE										
EXTERNAL WORKS										
TOTAL										

COST OF OTHER WORKS

DESCRIPTION	COST

ELEMENTAL COST ANALYSIS PER DWELLING TYPE

--	--	--	--	--	--	--

ELEMENT

DWELLING TYPE NO.

[illegible]

WORK BELOW GF LEVEL					
FRAME					
UPPER FLOORS					
ROOF					
ROOF LIGHTS					
STAIRCASES					
EXTERNAL WALLS					
WINDOWS					
EXTERNAL DOORS					
INTERNAL STRUCTURAL WALLS					
PARTITIONS					
INTERNAL DOORS					
IRONMONGERY					

WALL FINISHES					
FLOOR FINISHES					
CEILING FINISHES					
DECORATIONS					
FITTINGS					

SANITARY FITTINGS					
WASTE SOIL OVERFLOW					
COLD WATER SERVICES					
HOT WATER SERVICES					
HEATING SERVICES					
VENTILATING SERVICES					
GAS SERVICES					
ELECTRICAL SERVICES					
SPECIAL SERVICES					
DRAINAGE					

EXTERNAL WORKS							
GROSS COST SQ. FT.							
NET COST SQ. FT.							

7.04 DESIGN FEES

Total cost of design fees

BREAKDOWN OF FEES

Inception - sketch design	
Working drawings - Tender	
Tender - supervision	

7.05 MAINTENANCE COSTS

DWELLING TYPE NO.

area external paintwork							
area self maintaining							
can windows be cleaned internally							

Who is responsible for exterior decoration

tenant

☐

landlord

☐

NO. OF GARAGES INTEGRAL WITH DWELLING	
COST OF ABOVE	

NO. OF GARAGES SEPARATE FROM DWELLING	
COST OF ABOVE	

Who is responsible for internal decoration

tenant

☐

landlord

☐

Who maintains internal public areas

tenant

☐

landlord

☐

caretaker

☐

Who maintains public open areas

tenant

☐

landlord

☐

caretaker

☐

local authority

☐

8.00 TECHNICAL

8.01 Elemental Description

8.02 Constructional System

8.03 Materials

8.04 Plant and Equipment

S.01 ELEMENTAL DESCRIPTION : DWELLING TYPE NO.

Complete one form per dwelling type

WORK BELOW GROUND FLOOR LEVEL

FRAME

UPPER FLOORS

ROOF

ROOF LIGHTS

STAIRCASES

EXTERNAL WALLS

WINDOWS

EXTERNAL DOORS

INTERNAL STRUCTURAL WALLS

PARTITIONS

INTERNAL DOORS

IRONMONGERY

WALL FINISHES

FLOOR FINISHES

CEILING FINISHES

DECORATIONS

FITTINGS

SANTARY FITTINGS

WASTE, SOIL OVERFLOW

COLD WATER SERVICES

HOT WATER SERVICES

HEATING SERVICES

VENTILATING SERVICES

GAS SERVICES

ELECTRICAL SERVICES

SPECIAL SERVICES

DRAINAGE

EXTERNAL WORKS

8.02 CONSTRUCTIONAL SYSTEM

What is the construction system

DWELLING TYPE NO.

Load bearing walls									
frame									
composite									

Number of NBA appraisal certificate

8.03 MATERIALS

What materials are used in construction

DWELLING TYPE NO.

[illegible]

Structural system

brick								
in-situ concrete								
precast concrete								
timber								
steel								
plastic								

[illegible]

What main items of PLANT AND EQUIPMENT were used.

[illegible]

9.00 ACTIVITIES CHECK LIST

9.01 Site Layout

9.02 Dwelling Design

9.01 SITE LAYOUT

Pedestrian access and circulation

Car access and circulation

Drying Washing.

Refuse Disposal

Leisure activities - Toddlers.

Leisure activities - Children

Leisure activities - Adults

9.01 SITE LAYOUT

Pedestrian access and circulation

Is there a comprehensive pedestrian access system taking in the layout as a whole including the inside of the buildings.

Are the access decks and balconies etc., sufficiently wide to meet the needs of those likely to use them, including mothers with prams, people moving heavy or bulky objects, milk floats and trolleys.

Is there an adequate provision of lifts to enable residents to reach the ground easily.

Have the lift cars and approaches been designed with the stretcher and coffin in mind.

Have service lifts been provided large enough to take furniture trolleys and milk floats.

Are all staircases designed to be under cover.

Has a private lock-up store for prams, bicycles, etc., been provided at ground floor level for each dwelling with under cover access -

- (a) Where no lifts have been provided.
- (b) Where there are lifts but inadequate space in the dwellings.

Have railings, parapets, handrails, etc., and balconies and access decks been designed to provide a reasonable degree of safety.

Are the decks, balconies and stairs well lit.

Do the access and escape facilities conform to the requirements of the local Chief Fire Officer.

Do the paths always take the shortest possible routes to the areas they serve.

Are the paths sufficiently wide to cope with the numbers likely to use them, including mothers with prams, people moving heavy or bulky objects, trolleys and milk floats.

Have the entrances to buildings and other areas where people are likely to congregate been provided with adequate paved areas.

Is it possible for the path system to be used by children as a cycle track.

Are the paths, steps, etc., well lit.

Is the pedestrian path system well signposted.

At changes of level and where footbridges and underpasses are provided have adequate ramps been provided to meet the needs of the elderly, mothers with prams, people moving heavy or bulky objects, trolleys and milk floats.

As the paths, steps, etc., will be used by children as play areas and by the elderly, have they been designed to provide a reasonable degree of safety.

Car access and circulation

Can private cars and other larger vehicles safely and easily enter and leave the layout by the surrounding primary or district distributor roads.

Will the primary or district distributor roads be a source of nuisance to any of the dwellings through:

- (a) Noise
- (b) Dirt
- (c) Loss of privacy
- (d) Danger.

Is there an adequate distributor road network to keep through traffic out of the residential area.

Are the local roads designed to discourage high speeds.

Are the roads designed:

- (a) To take the estimated traffic flow.
- (b) To take large vehicles.
- (c) To take parked vehicles.
- (d) To provide adequate turning circles.

Is it possible for fire engines and appliances to gain close access to all dwellings.

Are good sight lines provided at corners, junctions of roads and junctions between roads and the path system. Will they be obstructed by parked vehicles.

Are the roads well lit.

Can the roads be easily cleaned by mechanical sweepers.

Are the roads designed to avoid nuisance to nearby dwellings arising from noise, dirt, smell and lights shining in windows.

Are there sufficient car spaces to meet present and future demands by:

- (a) Residents
- (b) Visitors.

Are parking spaces located within reasonable walking distance of the dwellings for:

- (a) Residents
- (b) Elderly residents
- (c) Visitors.

Are car spaces provided for the exclusive use of residents.

Have adequate facilities been provided for car maintenance.

Will it be easy to park a car in the spaces provided.

Are the parking spaces sufficiently large to take the car and allow people to get in and out easily.

Is the location of parking spaces particularly if grouped likely to prove unsightly both from the ground and from above.

Assuming that pedestrians will walk and children will play in the access roads and parking areas, have these been designed to provide a reasonable degree of safety.

Are cars safe from theft or vandalism when parked.

Are setting down points located within reasonable walking distance of the dwellings:

- (a) Residents and visitors
- (b) Elderly residents
- (c) Service vehicles.

Drying Washing

Is there space for drying washing outdoors.

Will the drying of washing interfere with other activities.

Will the drying of washing be unsightly.

Will drying washing be safe from theft.

Will the drying washing receive the sun.

Is it possible to reach the drying line and to put the clothes on it without having to walk or stand on unpaved surfaces.

Is the drying line located conveniently in relation to the space where the washing will be carried out.

Do the facilities provided for elderly households take into account their physical disabilities.

Is there sufficient space around the drying line for the washing to blow freely without touching other surfaces.

Can an adequate length of line be erected in the outdoor space provided.

Refuse disposal

Is there adequate capacity for the disposal of all domestic refuse, both large and small amounts, bearing in mind the frequency of collection intended.

Has provision been made for the storage of bulky articles which cannot be accommodated by the Refuse Disposal System.

Are the facilities located conveniently in relation to the kitchen.

Are individual dustbins and dustbin enclosures sited in the shade.

Is the dustbin readily accessible to the connector and can it be easily removed without having to be taken through any part of the dwelling.

Will the location of the facilities cause a nuisance to nearby dwellings through noise, smell or unsightliness.

Has adequate provision been made for the supervision and maintenance of communal facilities, including all mechanical equipment, container chambers and chutes.

Can the facilities be used with little effort.

Are the facilities designed to prevent overflowing and spillage of the refuse when being filled.

Are the facilities designed to prevent interference by children or animals.

Has adequate ventilation been provided for the facilities.

Had adequate artificial lighting been provided.

Will there be danger from fire.

Leisure activities - Babies and Toddlers

Is there an outdoor space where a pram can be parked under supervision of mother.

Is there an outdoor space where children can play under the supervision of their mothers.

Are the communal outdoor spaces places where these children can get a wider variety of experience and where mothers can meet.

Are the communal spaces designed to discourage them being used by older children particularly for their more robust games.

Leisure activities - Children

Can the communal play areas be reached without crossing busy roads.

Are the communal play areas within reasonable walking distance of the dwellings.

Are there any supervised play areas on the site where children of all age groups can play together.

Is there any indoor space on the site which could be used for pre-school play groups, and older children's indoor play.

Are the outdoor spaces, both private and communal large enough for the numbers of children involved.

Do all the spaces receive the sun.

Are the spaces sheltered from the wind.

Are spaces adequately fenced.

Are the spaces designed to provide a reasonable degree of safety..

Are the spaces both private and communal located in such a way that they are likely to be a nuisance to nearby dwellings or other users of the open spaces.

Where communal spaces are located away from dwellings are they provided with lavatories.

Leisure activities - Adults

Are the private sitting out spaces sufficiently large.

Are the communal sitting out spaces in close proximity to all dwellings.

Are there spaces either private or communal where the residents can sit and enjoy fresh air and sunshine.

Are the spaces designed and located to meet a variety of tastes and needs.

Are the sitting out spaces separated from areas which will be used by children for their more robust play.

Are the spaces located in such a way that they are likely to be a nuisance to nearby households through noise or loss of privacy.

Do the spaces provide adequate privacy for the users.

Will the sitting out spaces receive the sun.

Are the sitting out spaces sheltered from the wind.

Are the spaces provided with benches.

Are these spaces immediately adjacent to most dwellings which can be cultivated.

Are the private open spaces provided with adequate fencing.

Are the private open spaces provided with storage facilities for tools, fertilizer etc.

Are there allotments within reasonable distance.

9.02 DWELLING DESIGN

Spatial Layout

Entrance

Relationship between spaces

Kitchen

Living spaces

Bedrooms

Bathroom and W.C.

Storage

Services

Garden

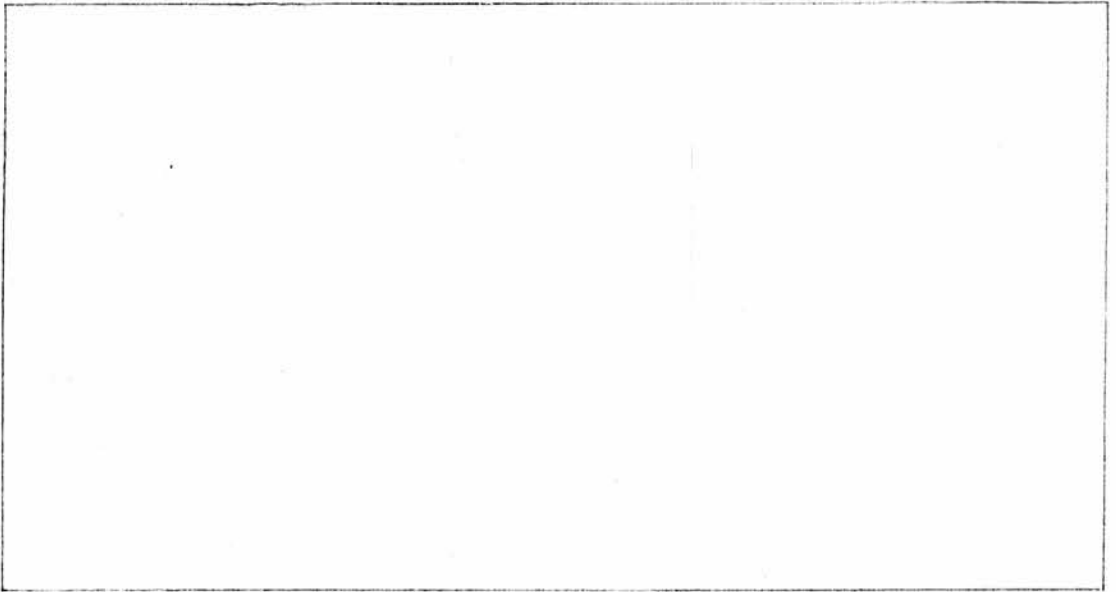
General

9.02 DWELLING DESIGN

Spatial Layout

Do the net floor area of the house and its general storage space conform to the mandatory standards given in Circular 36/67.

What is the space relationship diagram



Is the plan (a) suitable for single access

(b) does it require access from both sides.

Does the plan itself give reasonable privacy :

(a) to its living rooms and bedrooms from people calling or passing by.

(b) to its private garden from overlooking from other houses.

(c) to the gardens and living rooms of other houses.

Entrance

Is the hall sufficiently large enough to :

- (a) receive visitors and to allow a pram and furniture to be brought indoors.
- (b) hang outdoor clothes.

Is there any protection at the front door for casual callers.

Can bicycles and prams be stored without having to go through entrance halls, living areas or kitchen.

Is there at or near the entrance access to a w.c. and wash hand basin without going through any living areas.

Is there a covered route from the house to -

- (a) the garage.
- (b) the refuse store.
- (c) the fuel store.

Can refuse be collected without the collector entering house.

Is the refuse store inconspicuous from the main entrance.

Can fuel be delivered without deliverer entering house.

Can painter and window cleaner get ladder to all sides of house.

Can the meters be read from :

- (a) the outside of the house.
- (b) without entering the living areas.

Relationship between spaces

Is there a route for the pram and children through the house to the garden without entering the main living area.

Can members of the household get from the entrance to their bedrooms without disturbing -

- (a) any living area.
- (b) at least the main living area.

Can you get from each bedroom to the w.c. and bathroom without -

- (a) going through any other room.
- (b) crossing the entrance hall.
- (c) going up or down stairs to another floor.

Are the circulation spaces -

- (a) adequate in size for larger items of furniture to be moved about the house.
- (b) suitable for other purposes, e.g. telephone.

Is there a convenient relationship between the kitchen, the living areas and the outside spaces so that :

- (a) the kitchen has direct access to the dining area and reasonable access to the main living area.
- (b) the kitchen has a view of and close access to , the private open space for supervising children's play, etc.
- (c) the kitchen has a reasonable prospect.
- (d) the kitchen has convenient access to the refuse store without going through the main living area.

Is at least one living room not used as a passage.

Can you get direct from the main entrance to a dirty clothes store and to a place where you can wash.

Is the fuel store conveniently sited.

What is the % circulation.

Do the living areas have -

- (a) a view of the garden and easy access to it.
- (b) privacy from the main entrance.

Is the general storage provision -

- (a) conveniently distributed e.g. so that bicycles and gardening tools do not have to be taken through the house.
- (b) likely to be free from damp, for storing the vacuum cleaner, trunks, etc.

Kitchen

Can some meals be taken in the kitchen.

Is there adequate built-in storage for foodstuffs, utensils, cleaning materials, etc.

Is there adequate space allowed for -

cooker

washing machine

spin dryer

refrigerator

Has any provision been made for items not yet commonly owned -

dishwasher

deep freeze

tumble dryer

Are the working arrangements adequate -

(a) Is the work surface adequate in area.

(b) Is there an unbroken work surface between and either side of, the cooker and sink.

(c) Is the relationship between sink, cooker, refrigerator and ventilated cupboard both compact and free from circulation.

(d) Is there space in the kitchen for washing, ironing and drying clothes.

Is there a utility room.

Do doors opening into the kitchen obstruct working areas.

Are there adequate means of preventing kitchen smells reaching -

(a) main dining area.

(b) other parts of the house.

Have opposite kitchen doors been screened.

Is the washing line easily reached from the kitchen.

Living spaces

Is the living space large enough to accommodate the necessary furniture for the family and occasional visitors.

Is the living space large enough to provide for alternative plan layouts.

Can the main living space be shut off from the rest of the house.

Can young children play near mother while she is working in the kitchen.

Is there a private outside space adjacent to the living room.

In four person plus houses, is there -

- (a) a separate second living space
 - dining room
 - dining hall
 - kitchen with dining space
 - study

- (b) Can both living spaces be combined into one for special occasions.

Is the main dining area large enough for the whole family and occasional visitors.

Can the dining space be used sometimes in conjunction with the kitchen and sometimes in conjunction with the rest of the living area.

Can the dining space be used for quiet activities.

If the dining space is separate from the main living space is it large enough to accommodate a sideboard in addition to tables and chairs.

Can the working area of the kitchen be screened from view from the main dining space.

Bedrooms

Can each member of the family other than the parents have a single bedroom to himself.

Is there space in each bedroom to accommodate the required furniture.

Is there space in each bedroom to allow alternative furniture arrangements.

Is there space for a cot to be put occasionally in the main bedroom.

Is there space for a desk or dressing table in single bedrooms.

When the house is under-occupied/or when the children are young and sharing bedrooms -

(a) Can at least one of the unoccupied bedrooms be used to enlarge the living areas or another bedroom.

(b) Can two of the single bedrooms be used as a double room.

Does the plan provide any sound insulation between -

(a) the bedrooms

(b) the bedrooms and living rooms.

Can parents and children both sleep on the same floor.

Can teenagers have their own room.

Can space be found to accommodate a visitor's bed for a short stay.

Bathroom and W.C.

Is the bathroom and W.C. adequate.

In houses with a second W.C. and wash basin are the compartment and its basin large enough to be used by an adult for washing, as an alternative to the bathroom.

Is there adequate space in the bathroom and W.C. compartments -

- (a) around the fittings;
- (b) to open the door and enter easily;
- (c) to accommodate a bathstool in the bathroom.

Does the plan contribute to sound insulation between the W.C. and -

- (a) the main entrance
- (b) the living areas
- (c) the bedrooms.

Storage

Is there a store or utility room inside the house with space for a work bench and storage for hobbies and household maintenance.

Is there adequate covered storage provision for -

(a) fuel where required;

(b) refuse.

Is the linen cupboard adequate for the size of dwelling.

Is the garden storage adequate.

Services

Does the plan form enable whole of partial house heating from a single source to be provided economically.

Is the hot water cylinder placed so that pipe runs to draw off outlets are short -

- (1) Maximum 15'0" to kitchen sink
- (2) Maximum 25'0" to other fittings.

Can all waste pipes be connected economically to one soil stack.

Does the plan avoid -

- (a) waste drainage outlets on both sides of the house.
- (b) excessive lengths of drainage under the ground floor slab.

Have adequate socket outlets been provided.

Are the socket outlets conveniently sited.

Garden

Can you get from the garden into the home without having to go through the living room.

Can large garden tools be moved from where they are kept to where they are used without having to go through the house.

Has overlooking of garden by others been avoided.

Is there somewhere safe and secure for toddlers to play.

General

Is there any provision in the house for adaptability of major changes of family structure.

Is there any provision in the dwelling design for future extensions.

Are windows and doors positioned -

- (a) to allow the best possible arrangements for furniture and equipment.
- (b) to avoid dangerous obstructions in circulation areas within the house and at the entrance.
- (c) to give easy access to windows from inside and outside for cleaning by the occupant.

Are the stairs designed to avoid -

- (a) windows at the top.
- (b) one single step in an unexpected position.
- (c) a handrail which is not continuous.
- (d) a top tread which encroaches into the landing.
- (e) a projecting tread at the bottom.

Are windows positioned to give the best possible privacy to the household from overlooking by passers-by and callers.

10.00 DESIGN TEAM/CLIENT ORGANISATION BACKGROUND

10.01 Architect

10.02 Client

10.03 Consultants

10.04 Design Category

10.05 Design History

10.01 ARCHITECT

Name and address of architect for layout .

Name and address of architect for buildings

10.02 CLIENT

Name and address of developing client

10.03 CONSULTANTS

Name, address and description of consultants employed. Indicate organisation appointing.

[illegible]

Design Team Composition

	QS private	QS developers own	QS architects own	STRUC. ENG. private	developers own	architects own	LAND. ARCH. private	developers own	architects own	SERV. ENG. private	developers own	architects own
A PRIVATE ARCHITECT												
B CENTRAL GOVT. DEPARTMENT												
C LOCAL GOVT. BOROUGH, COUNTY BOROUGH, COUNTY												
D LOCAL GOVT. CONSORTIA												
E STATUTORY UNDERTAKING												
F RESEARCH AND DEVELOPMENT GROUP												
G CONTRACTOR												
H MANUFACTURER												

Category of consultant situation

10.04 DESIGN CATEGORY

	1	2	3	4	5	6
	PRIVATE INDIVIDUAL	PROFIT MAKING COMPANY	NON-PROFIT MAKING COMPANY	PUBLIC AUTHORITY WITH OWN ARCHITECT	PUBLIC AUTHORITY WITHOUT OWN ARCHITECT	CONTRACTOR
A PRIVATE ARCHITECT						
B CENTRAL GOVERNMENT DEPARTMENT						
C LOCAL GOVERNMENT BOROUGH, COUNTY, COUNTY BOROUGH						
D LOCAL GOVERNMENT CONSORTIA						
E STATUTORY UNDERTAKING						
F RESEARCH AND DEVELOPMENT GROUP						
G CONTRACTOR						
H MANUFACTURER						

Category of design situation

10.05 DESIGN HISTORY

Name of Job Architect

	2000	2001
--	------	------

Description of project history by the above giving details of manpower employed and design programme.

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slightly textured appearance with some minor dust specks. The edges of the paper are slightly irregular.

How was liaison with client organisation carried out

[illegible]

What facilities were available to the design team

[illegible]

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or printed text on the paper.

--

[illegible]

Does the designer consider the occupants to be satisfied with the dwellings.

Does the designer consider the occupants to be satisfied with the layout.

What does the designer consider to be the most critical faults of the project.

[illegible]

How has the experience of the project been fed back into the office.

--

How does the office consider its reputation to have been affected by the project.

[illegible]

Was the project financially profitable.

[illegible]This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

11.00 DESIGNER/CLIENT IMPOSED CONSIDERATIONS

11.01 Brief

11.02 Programme

11.03 Site

11.04 Climate

11.05 Spatial

11.06 Physical

11.07 Economic

11.08 Technical

11.09 Activities

11.10 Organisations

11.01 BRIEF

Was a brief established before the appointment
of an architect.

--




Description of first brief.

Date of first brief.

--	--	--	--

11.02 PROGRAMME

Date of architects appointment

		
---	--	---

Was the building programme influenced by dates stipulated by client. Describe.

11.03 SITE

What considerations were imposed by design organisation

[illegible]

What considerations were imposed by client organisation

[illegible]

11.04 CLIMATE

What considerations were imposed by design organisation

What considerations were imposed by client organisation

11.05 SPATIAL

What considerations were imposed by design organisation

What considerations were imposed by client organisation

11.06 PHYSICAL

What considerations were imposed by design organisations

What considerations were imposed by client organisations

11.07 ECONOMIC

What considerations were imposed by design organisations

What considerations were imposed by client organisations

11.08 TECHNICAL

What considerations were imposed by the design organisation

What considerations were imposed by the client organisation

11.09 ACTIVITIES

What considerations were imposed by the design organisation

What considerations were imposed by the client organisation

11.10 ORGANISATIONS

What considerations did the client consider were imposed by the designer

[illegible]

What considerations did the designer consider were imposed by the client

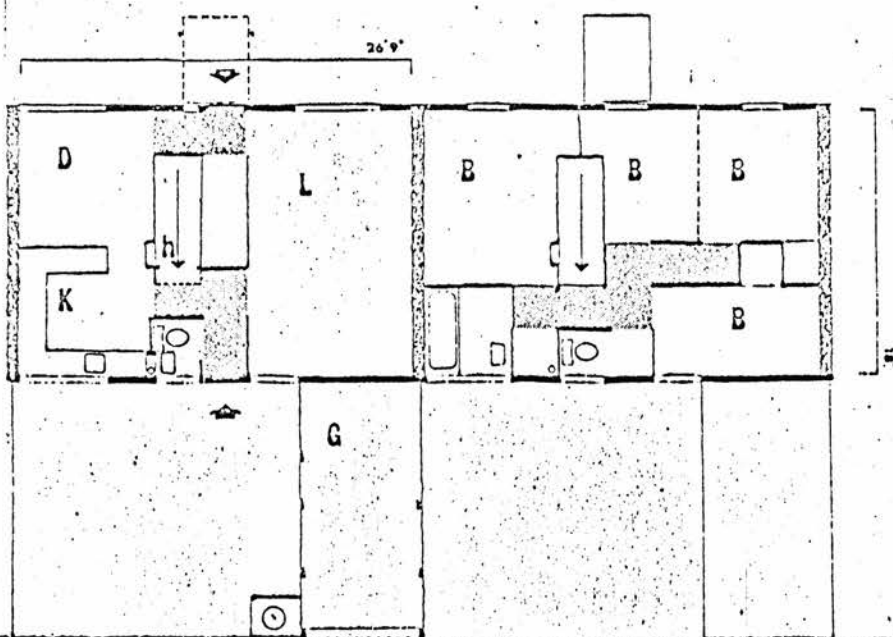
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[illegible]

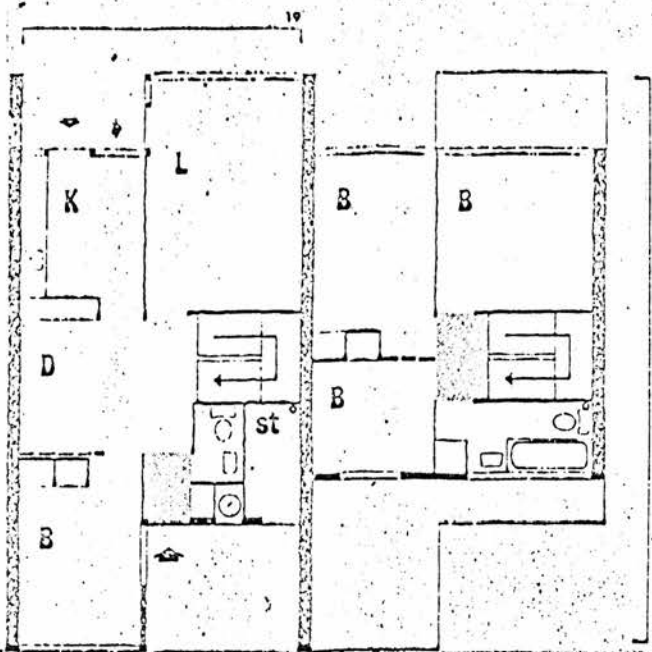
APPENDIX TWO

House plans used for pilot study Sets A & B



MIDLANDS HOUSING CONSORTIUM
 MHC- Architects.
 Net area, 963 square feet

code **a** ①



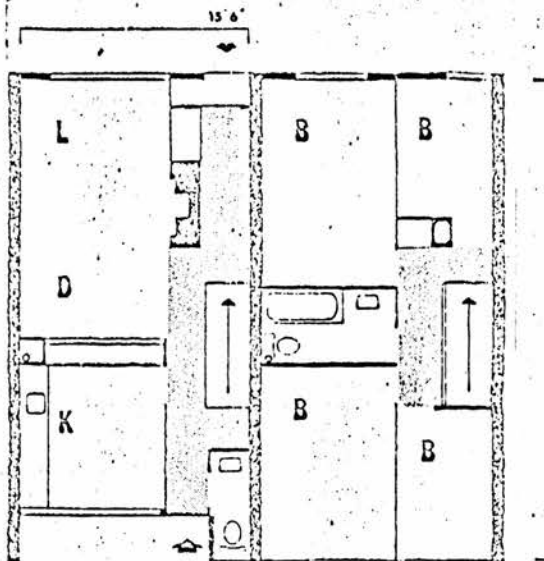
WEST HAM.

MOHLG- Architects

Net area 931 square feet

code

a 2



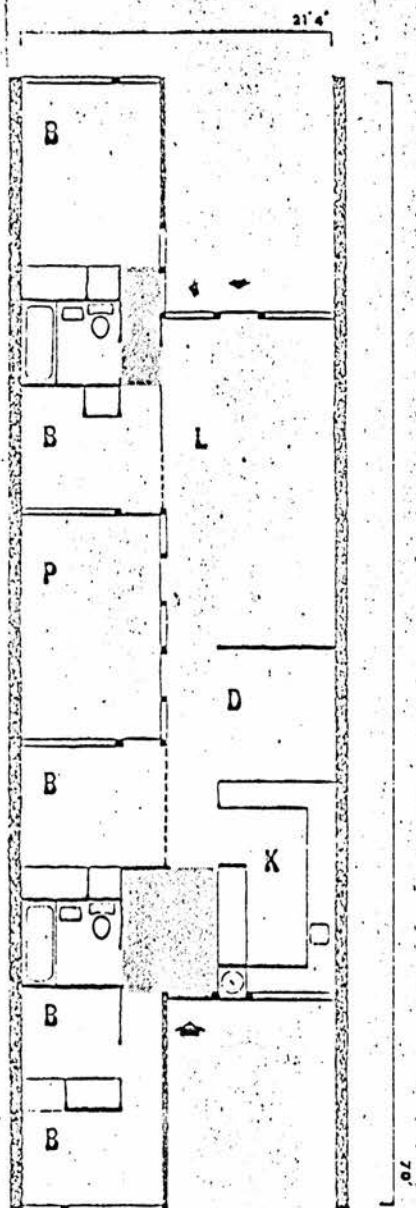
BOSTON MANOR

Shankland, Cox and Partners- Architects

Net area 974 SQUARE FEET

code **a** (3)

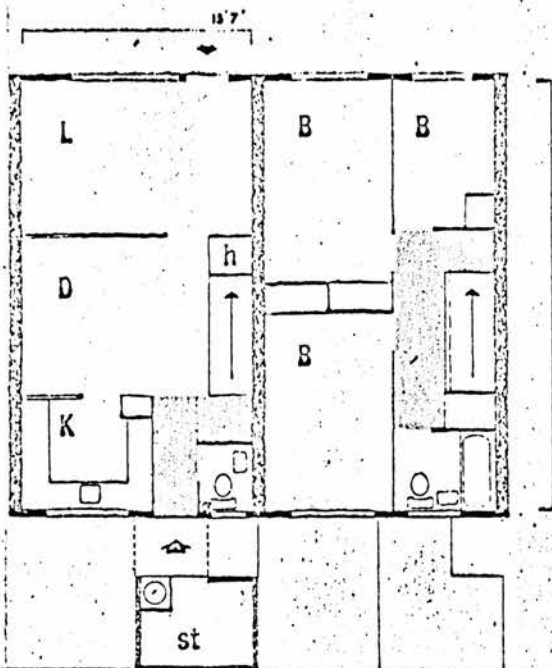




HATFIELD- THE HYDE
 Peter Phippen- Architect
 Net Area 966 square feet

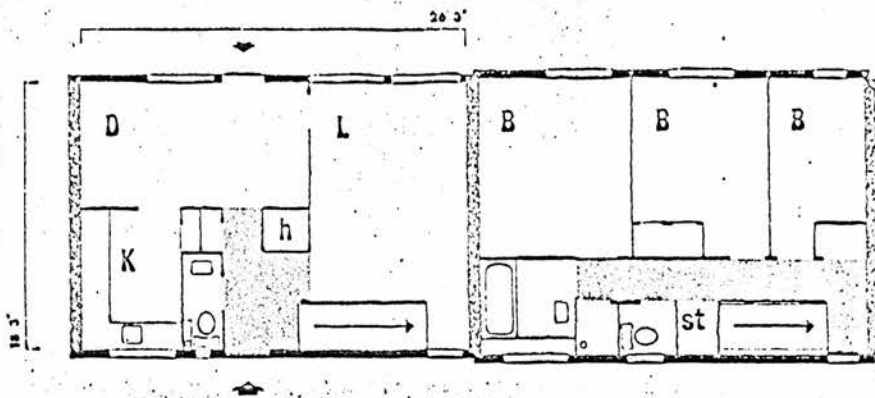
code **a** (4)





GUILDWAY
 Guildway Ltd - Architects
 Net Area 922 square feet

code **a** (5)



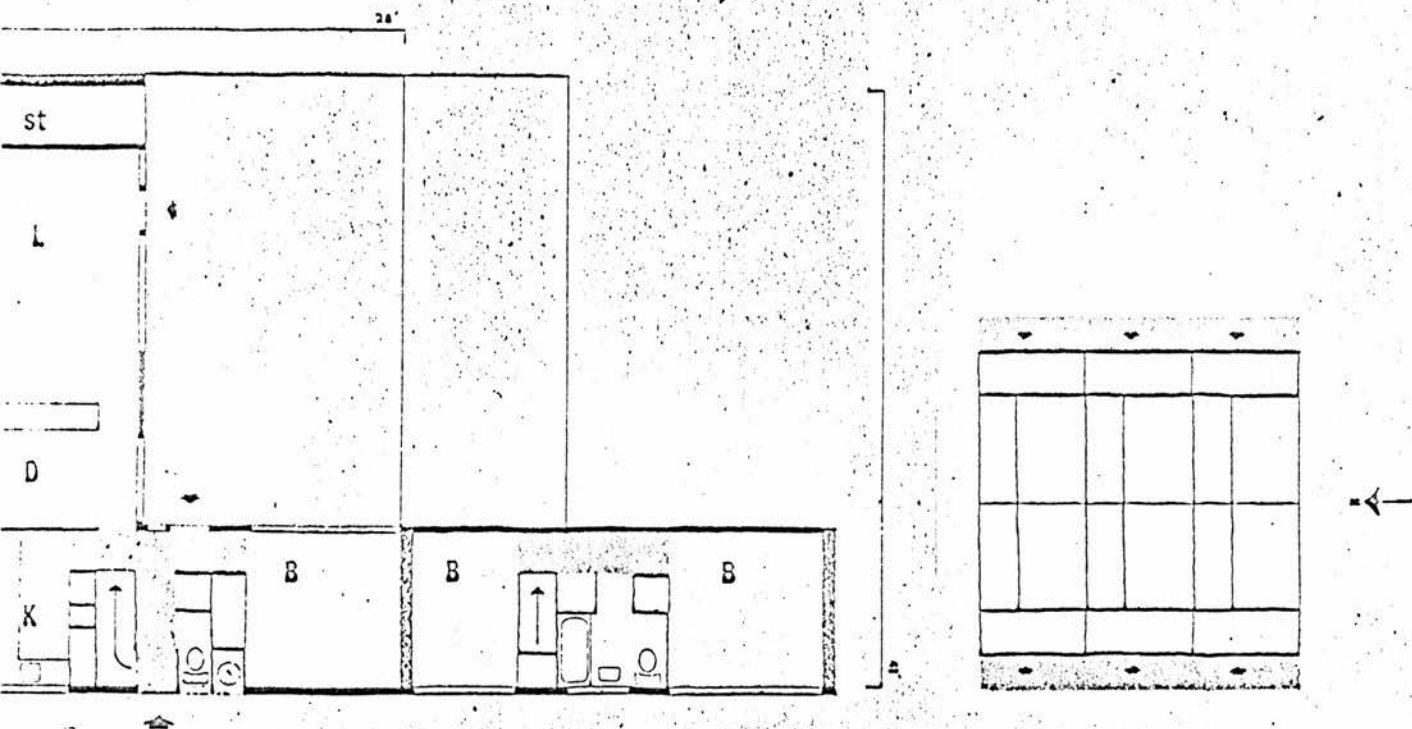
ANGLIA

GLC-Architects

Net area 962 square feet

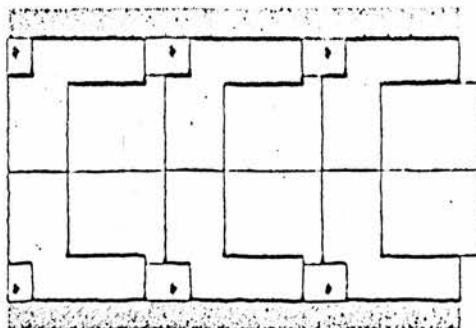
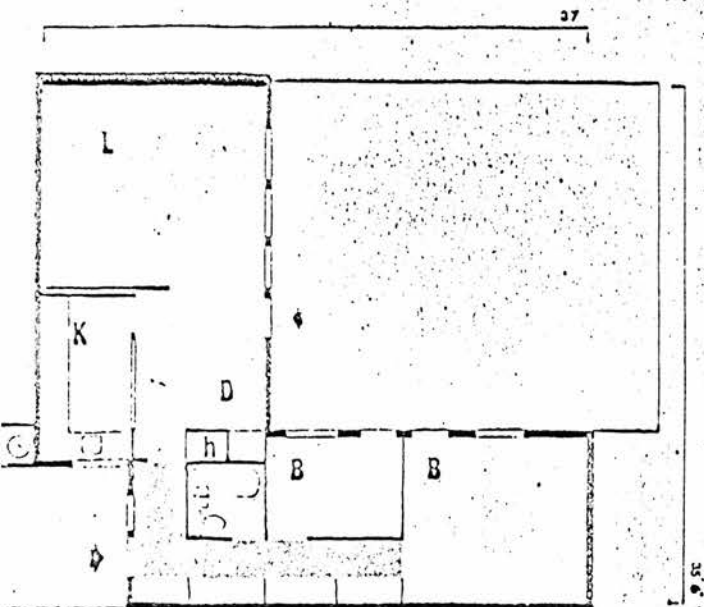
code

a 6



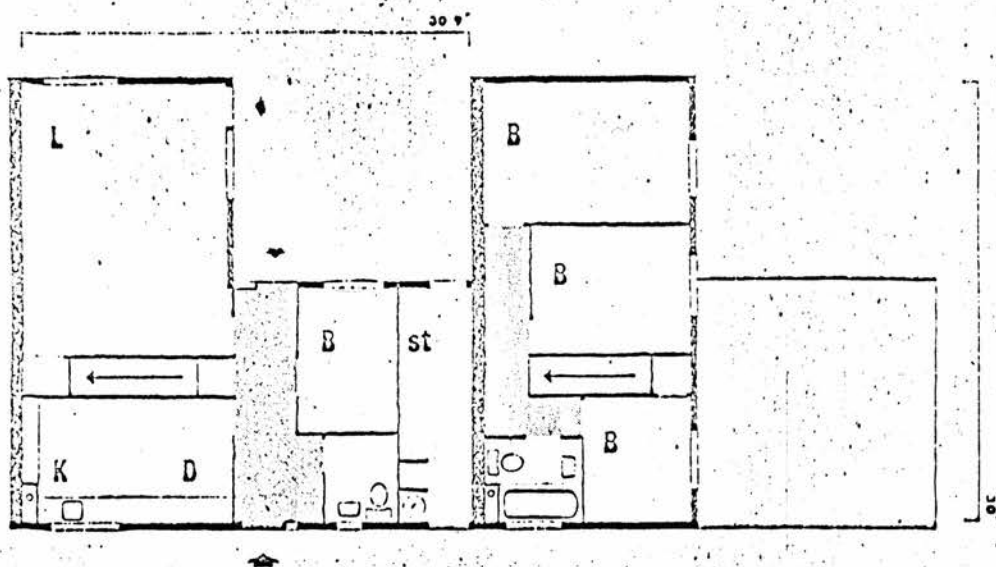
ALDERSHOT
 War Office- Architects
 Net area 845 square feet

code **b** ①



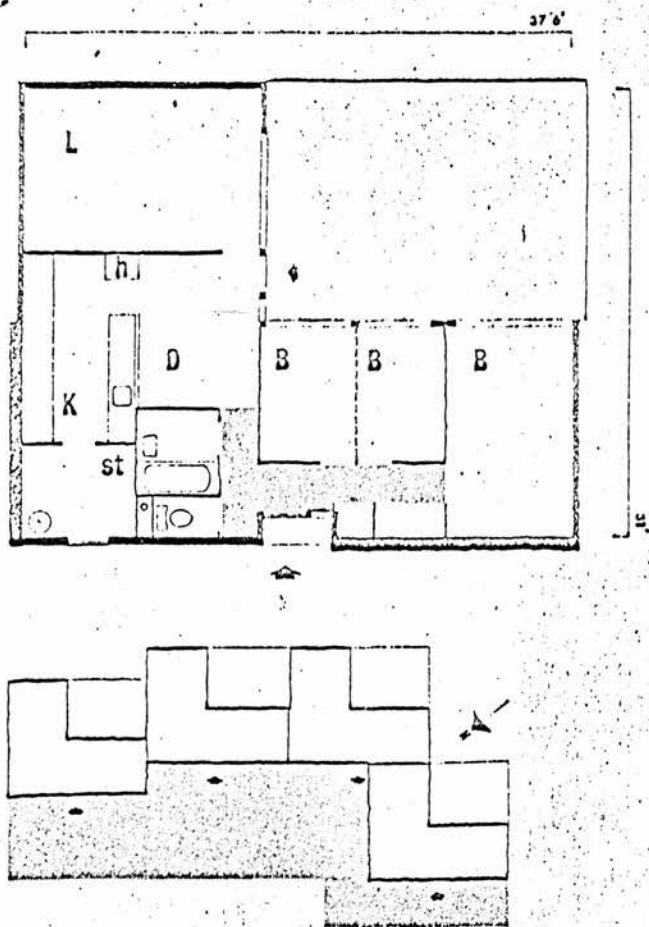
WESTGATE
GLOUCESTER C.D.-Architects
net area 762 square feet

code **b** (2)



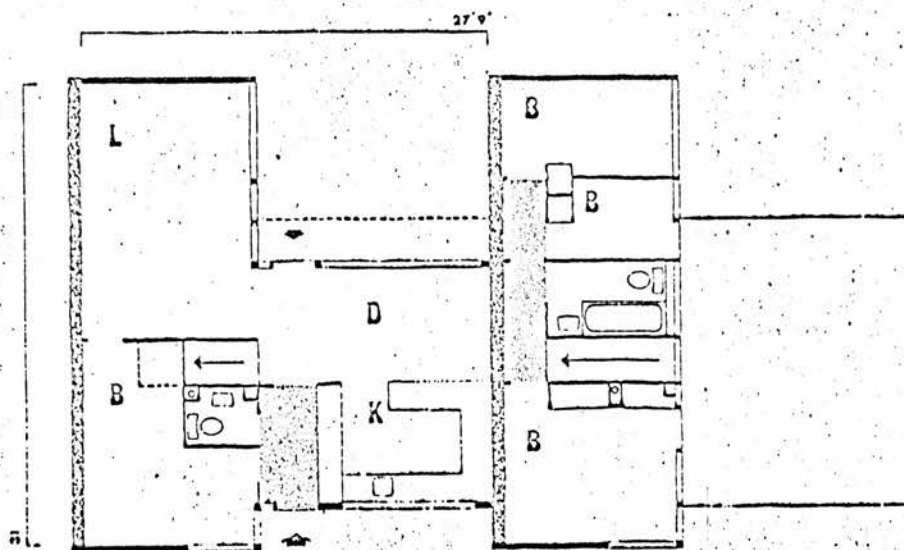
SAWSTON
 SAWSTON CONCRETE -Architects
 Net area 1024 square feet.

code **b** ③



SHEFFIELD
 SHEFFIELD C.B.-Architects
 Net area 755 square feet

code **b** ④

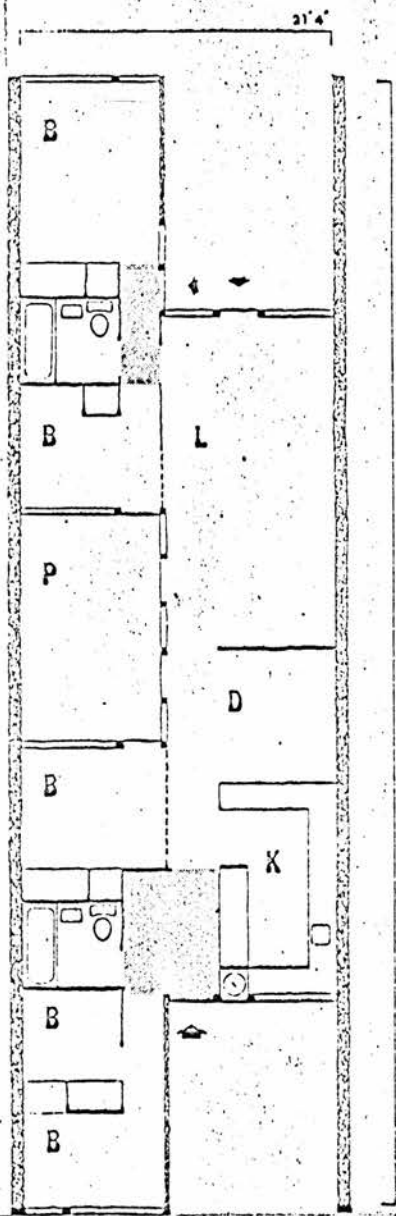


ADAPTABLE HOUSE- IDEAL HOME

MONIG-Architect

Net area 973 square feet

code **b** 5



HATFIELD- TRE RYDE
Peter Phippen- Architects
Net area 966 square feet

code **b** 6

APPENDIX THREE

Single storey housing layouts – Comparative Analysis

INGS RED AT FLOOR L AS ENTAGE OTAL INGS	5 +						
	4						
	3						
	2						
	1						

AGE BEDSPACES/ LING	3.89	4.60	4.95	3.70	3.65	4.42
AGE HABITABLE DWELLING	3.39	3.64	4.95	3.45	3.37	3.51
AGE BEDSPACE/ HABITABLE ROOM	1.08	1.30	1.00	1.07	1.08	1.19
HABITABLE AREA BEDSPACE	275	208	228	147	218	159
INGS/ACRE	10.3	11.3	10.2	19.9	21.9	18.6
PACES/ACRE	39.0	45.9	49.6	71.0	77.1	82.0

BUILDING BEGAN	61	63	65	63	66	70
L BEDSPACES	170	300	136	988	1754	283
L HABITABLE ROOMS	148	238	136	923	1620	235
L DWELLINGS	45	74	28	267	481	64
AREA/ACRES	4.36	6.52	2.72	13.7	22.8	3.44
PRESTONPANS						
ARDLER STREET						
THE RYDE						
BISHOPSFIELD						
CLARKHILL						
KINGSTANDING						

Figure A2.1 : Basic Analysis : Single Storey Layouts.

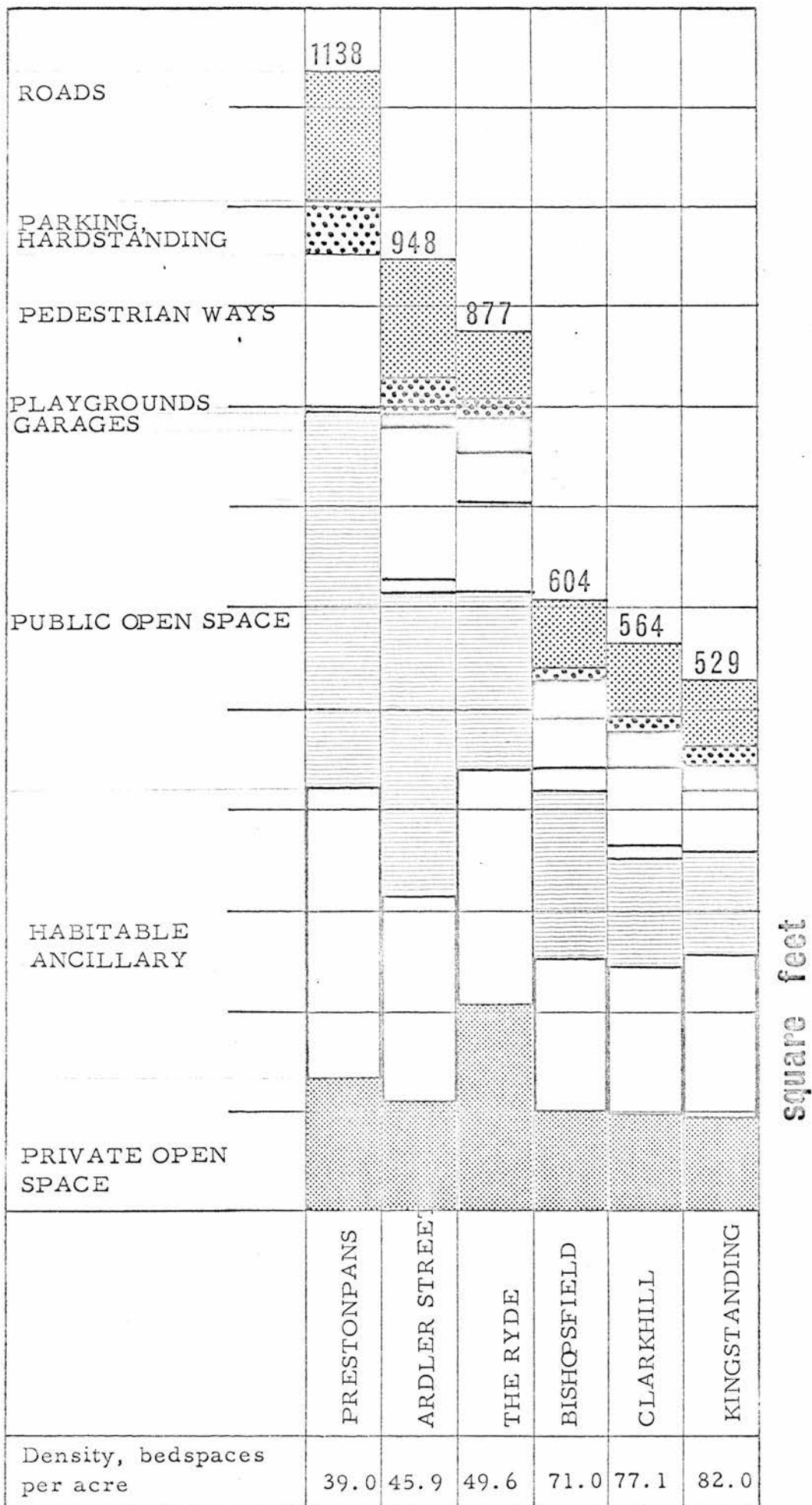


Figure 3.2 : Analysis of Areas per Bedspace.

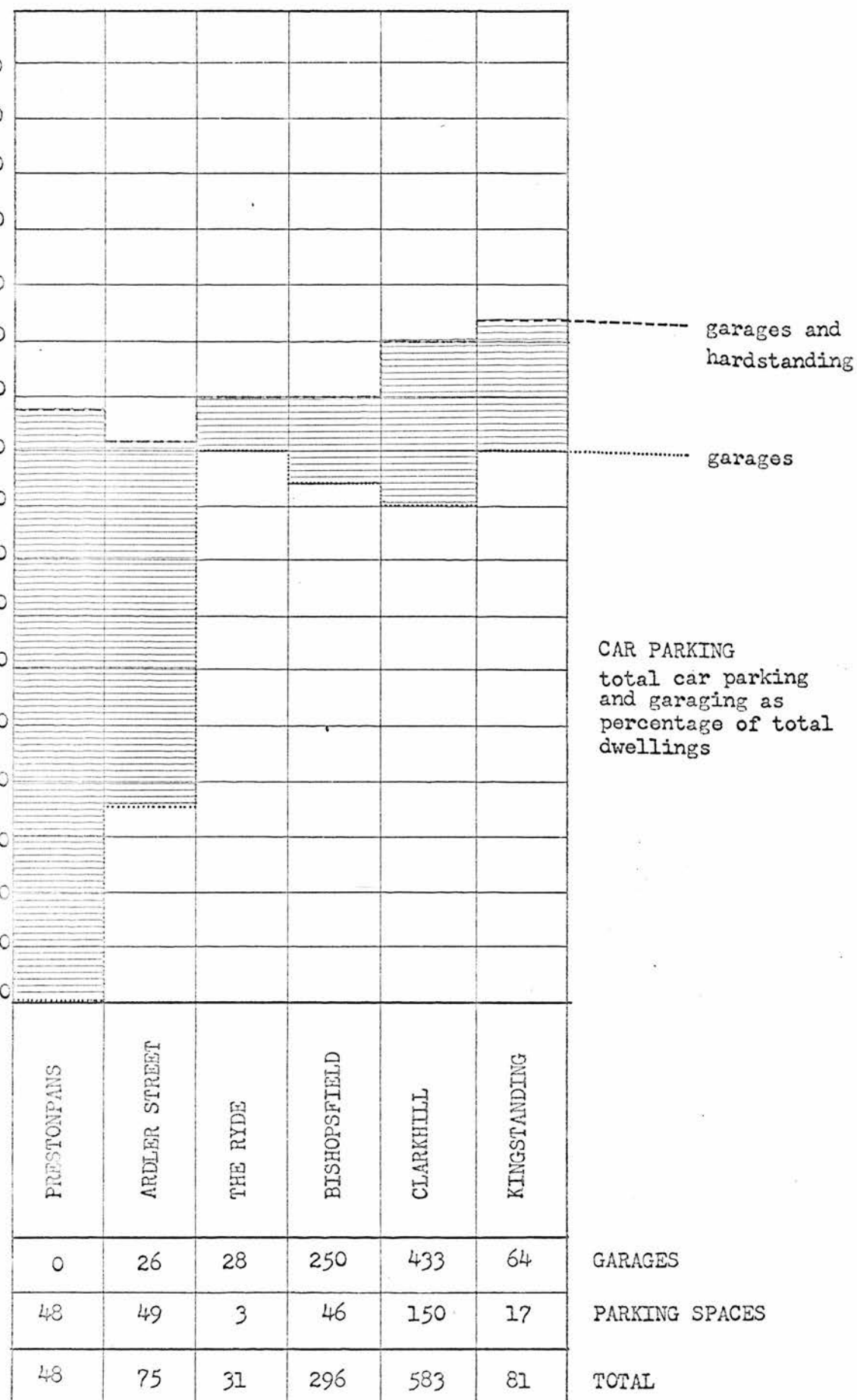
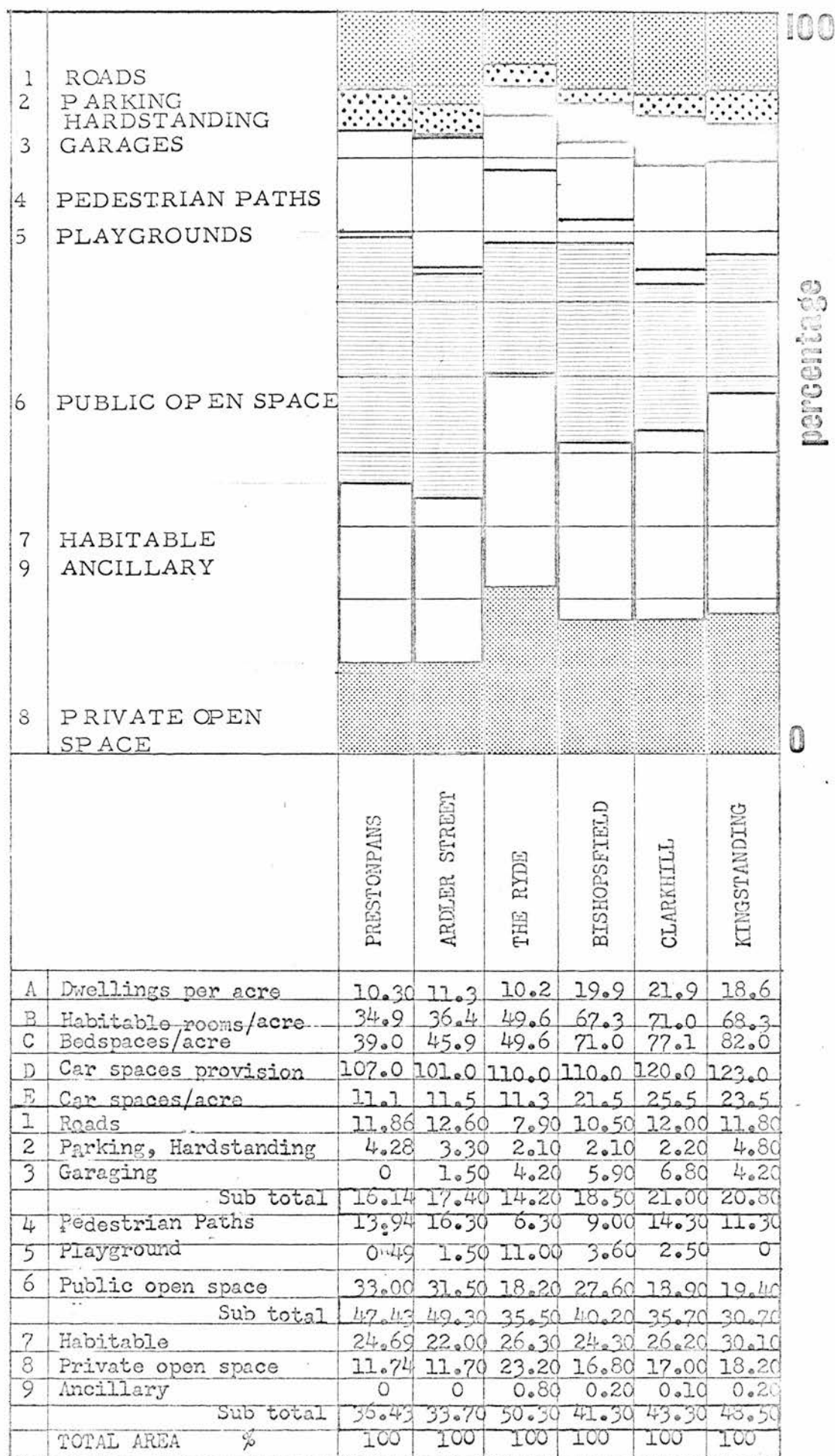


Figure 43.3: Standard of Provision for the Car.

	PRESTONPANS	ARDLER STREET	THE RYDE	BISHOPSFIELD	CLARKHILL	KINGSTANDING
1. ROADS	134	119	69	63	69	62
2. PARKING, HARDSTANDING	48	33	17	12	15	25
3. GARAGING	0	15	35	36	41	22
SUB TOTAL	182	167	121	111	125	109
4. PEDESTRIAN PATHS	157	154	50	54	73	60
5. PLAYGROUND	5	15	90	22	14	0
6. PUBLIC OPEN SPACE	370	298	175	165	106	103
SUB TOTAL	532	467	315	241	193	163
7. HABITABLE	290	205	229	147	147	159
8. PRIVATE OPEN SPACE	134	109	204	100	98	96
9. ANCILLARY	0	0	8	5	1	2
SUB TOTAL	424	314	441	252	246	257
TOTAL	1138	948	877	604	564	529

Figure 3.4 : Square Feet per Bedspace

Figure 3.5 : Ground Area Analysis: Ground Areas as Percentage of Total Areas of Estates.



APPENDIX FOUR

Observation Tables

Figures given in the following table are for an average week day and are based on walkrounds carried out over 10 days. A total of 3,962 pedestrian observations were made in the four estates of which 37% were of adults.

A total of 3,098 cars, 78 service vehicles and 85 motor bikes were observed.

TIME	ROADS			PEDESTRIAN WAYS			FRONT GARDENS			PUBLIC OPEN SPACE			TOTAL 1		TOTAL 2	
	A	C		A	C		A	C		A	C		A	C	A	C
9.30	15	6		8	8		0	2		2	0		25	16	41	
10.30	20	10		16	12		1	8		0	2		37	32	69	
11.30	15	15		12	7		1	3		2	3		30	28	58	
14.30	7	17		12	1		0	0		3	0		22	18	40	
15.30	20	32		10	19		2	1		2	6		34	58	92	
16.30	11	61		9	41		3	18		1	10		24	130	154	
17.30	6	42		44	25		3	13		7	36		60	116	176	
18.30	1	23		8	6		5	3		0	5		14	37	51	
19.30	7	21		12	10		3	3		3	14		25	48	73	
TOTAL	102	227		131	129		18	51		20	75		271	483	744	
%	37.5	47.0		48.3	26.7		6.6	10.5		7.6	15.8		100	100		

CAMPSHILL
TABLE 1
PEDESTRIAN OBSERVATIONS

TIME	ROADS			PEDESTRIAN WAYS			FRONT GARDENS			PUBLIC OPEN SPACE			TOTAL 1	TOTAL 2
	A	C		A	C		A	C		A	C		A	C
9.30	9	6		14	20		6	3		6	10		35	39
10.30	10	8		15	20		5	8		3	18		33	54
11.30	7	5		21	17		9	7		1	16		38	45
14.30	3	8		16	4		3	11		6	14		28	37
15.30	8	25		21	66		1	17		6	37		36	145
16.30	5	18		23	62		9	18		4	53		41	151
17.30	1	13		15	29		1	9		4	19		21	70
18.30	6	4		3	7		2	10		2	9		13	30
19.30	1	9		2	0		0	1		0	0		3	10
TOTAL	50	98		130	225		36	84		32	176		248	544
%	20.1	16.5		52.4	38.6		14.5	14.4		13.0	30.5		100	100

FAIRLANDS
TABLE 2
PEDESTRIAN OBSERVATIONS

TIME	ROADS			PEDESTRIAN WAYS			FRONT GARDENS			PUBLIC OPEN SPACE			TOTAL 1		TOTAL 2
	A	C		A	C		A	C		A	C		A	C	
9.30	5	5		25	22		3	6		4	4		37	36	73
10.30	24	29		48	11		8	11		1	23		81	74	155
11.30	5	2		31	17		9	13		2	23		47	56	103
14.30	0	2		26	4		2	3		0	10		28	19	47
15.30	27	16		14	62		2	7		0	56		43	141	184
16.30	10	13		11	63		7	19		3	47		31	142	173
17.30	17	13		19	30		5	7		5	16		46	66	112
18.30	2	8		5	11		0	0		0	4		7	23	30
19.30	14	3		2	4		1	4		0	5		17	16	33
TOTAL	104	91		181	224		37	70		15	188		337	573	910
%	30.8	15.9		53.7	39.0		10.9	12.2		4.6	32.9		100	100	

SISHES END
TABLE 3
PEDESTRIAN OBSERVATIONS

TIME	ROADS			PEDESTRIAN WAYS			FRONT GARDENS			PUBLIC OPEN SPACE			TOTAL 1		TOTAL 2
	A	C		A	C		A	C		A	C		A	C	
9.30	2	0		9	3		0	1		0	6		11	10	21
10.30	2	2		7	11		3	3		0	10		12	26	38
11.30	4	4		51	26		7	3		12	17		74	50	124
14.30	0	0		4	11		0	2		0	8		4	19	23
15.30	6	23		21	32		0	0		4	28		31	83	114
16.30	3	19		23	39		3	7		0	30		26	95	121
17.30	16	21		23	32		8	17		2	38		49	108	157
18.30	3	0		12	1		3	0		3	15		21	16	37
19.30	2	0		6	3		3	4		7	5		18	12	30
TOTAL	38	69		156	158		27	37		28	159		246	419	665
%	15.4	16.6		63.4	37.2		10.9	8.8		10.3	37.4		100	100	

TROTTS HILL
TABLE 4
PEDESTRIAN OBSERVATIONS

TIME	CAMPSHILL						FAIRLANDS						SISHES END						TROTTS HILL					
	Cars		Service		M-Bikes		Cars		Service		M-Bikes		Cars		Service		M-Bikes		Cars		Service		M-Bikes	
	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P
9.30	28	36	3	1		2	9	48	2		2		14	26	1	1		1	7	23	1	1	1	
10.30	25	30	2	1	2	2	11	48	5		2		19	37	2	1		1	10	27	3			
11.30							14	45		1	2								8	8				
12.30																								
13.30	52	44	2	1	2	2	18	66	1	2	2		15	42		1		3	17	49	1		1	
14.30							10	39	3	2	1													2
15.30																			9	30				
16.30	43	40				2	19	67	1	3	1	3	13	28	2			2						
17.30	56	38	1		3	2	21	80		2	2								21	62	1		2	
18.30	80	52	2	2	3	1							16	61	3			2						
19.30	83	52	0	0	1	1							31	73	1			2						
20.30							18	120		2	2	1												
21.30																			35	56				
22.30	69	46			1	2							28	63	1	1		2						
23.30	53	51	1			2	25	123		3	1	3	22	61	4			2	21	66	1			

R - Vehicles parked on roads

P - Vehicles parked on parking areas.

Where two or more separate observations are made at the same time of the day, average is stated here.

TABLE 5

OBSERVATION OF PARKED VEHICLES

SOURCES CONSULTED AND REFERRED TO IN THE TEXT.

1. Barnett, W., Housing Related to Physical Planning. Proceedings of Housing Conference, University of Newcastle, 1968, p.1-2.
2. Roskill, O.W., Housing in Britain. Town and Country Planning Association, 1964, p.88-89.
3. Ministry of Health, Housing (Temporary Provisions) Act 1944. H.M.S.O. 1944. p.1-7.
4. Ministry of Health, Housing (Temporary Accommodation) Acts 1944 and 1945. H.M.S.O. 1944 and 1945. p.5-6.
5. H.C.O.R. Volume 420 Col. 451 1946.
6. Greve, J., The Housing Problem. Fabian Research Series No. 224 November 1961. p.3.
7. Ministry of Housing and Local Government. Houses-The Next Step. Cmd. 8996, November 1953.
8. Gray P.G. and Russell R., The Housing Situation in 1960. The Social Survey. Central Office of Information, 1962 p.17,37.
9. Cullingworth J.B., English Housing Trends. Bell 1965; p.44.
10. Donnison, D.V., Housing Since the Rent Act. Corgi Press 1961 p.3.
11. Gray, P.G. and Russell, R., op. cit.
12. Ministry of Housing and Local Government, Housing in England and Wales. Cmd. 1290, H.M.S.O. 1961.
13. Ministry of Housing and Local Government, Housing. Cmd. 2050 H.M.S.O. 1963.
14. Ministry of Land and Natural Resources, The Land Commission. Cmd. 2771, H.M.S.O. 1965
15. Ministry of Housing and Local Government, The Housing Programme 1965 to 1970. H.M.S.O. 1965.
16. Department of Economic Affairs, The National Plan. Cmd. 2764. H.M.S.O. 1965, Chapter 17.
17. Cullingworth, J.B., Housing and Local Government. Allen and Unwin, 1965. p.54.
18. Ministry of Housing and Local Government, Housing Act 1967. H.M.S.O. 1969.
19. Ministry of Housing and Local Government. Old Houses Into New Homes. H.M.S.O. April 1968.

20. Ministry of Housing and Local Government, Housing Statistics, No. 9. H.M.S.O. 1968, table 11.
21. Cullingworth, J.B., Housing in Transition. Heinemann 1963, p.105-142.
22. Ministry of Housing and Local Government, A Social Survey of Deeslith, Rochdale. M.H.L.G. 1965. p.11,19.
23. Donnison, D.V., The Government of Housing. Penguin 1967, p.189-190.
24. Ibid. p.189.
25. Greve, J., op. cit, p.8-13.
26. Donnison, D.V., Some Long Term Trends. R.I.B.A. Housing Conference Paper, R.I.B.A. 1962., p.19.
27. Donnison, D.V., op. cit., p.185-187.
28. Woolf, M., The Housing Situation in England and Wales in 1964. H.M.S.O. 1967, tables 2-3.
29. Donnison, Cockburn and Corlett, Housing Since the Rent Act. Occasional Paper on Social Administration, No.3, Codicote Press 1961. Chapter 4.
30. Redcliffe-Maud, Royal Commission for Local Government in England and Wales. H.M.S.O. 1967.
31. Donnison, D.V., op. cit, p.144-150.
32. The Building Standards (Scotland) Regulations 1963. H.M.S.O.
33. Layton, E., Building by Local Authorities. Allen and Unwin, 1961 p.24.
34. Cullingworth, J.B., op. cit. p.72-74.
35. Layton, E., op. cit. p.33.
36. Layton, E., op. cit. p.36.
37. Consortia of Local Authorities. The Builder, 1964. p.14-16.
38. Royal Institute of Public Administration, op. cit. p. 34.
39. Layton, E., op. cit. p.119.
40. Final Report of the New Towns Committee Cmd.6759, H.M.S.O. 1946. p.5-23.
41. Ministry of Housing and Local Government, The South East Study H.M.S.O. 1964. p.3-11.

42. National Building Agency, Line of Balance, N.B.A. 1968
43. National Building Agency, Future Activities, Official Architecture and Planning, November 1968. p.1427.
44. Gray, P.G. and Russell, R. op. cit. p.8-9.
45. Cullingworth, J.B. Owner Occupation in Scotland and in England and Wales: a comparative study. N.H.B.R.C. Research Report, 1969. p.8.
46. Gray, H. The Cost of Council Housing. I.E.A. Research Monograph, 1968. p.17.
47. Bilsby, L. Housing, Needs of the Future in the Private Sector, Architects Journal, 15th May, 1968. p.1113.
48. Ibid. p.1114.
49. Cullingworth, J.B. op. cit. p.25.
50. Newton, Sir Hubert. Finance - The Building Society Role, N.H.B.R.C. Conference Paper, Aviemore, 1969. p.2-4.
51. The Labour Party, Housing, Report of the Housing Study Policies Group The Labour Party, 1969. p.7.
52. Pennance, F.G. and West, W.A. Housing Market Analysis and Policy. I.E.A. Hobart Paper, 1969. p.22-24, & 46.
53. Donnison, D.V. op. cit. p.48-72.
54. Cox, O. Housing - Public and Private. Public Works and Municipal Services Congress, 1968. p.9,11.
55. Cox, O. Ibid. p.11.
56. Needleman, L. The Economics of Housing. Staples Press 1965. p.80.
57. Stone, P.A. Building Economy. Pergamon Press 1968, p.90.
58. Central Statistical Office, Annual Abstract of Statistics, H.M.S.O. 1969. table 5.
59. Annual Bulletin of Housing and Building Statistics for Europe. U.N. 1968.
60. Housing Statistics, No.9, H.M.S.O. 1968. tables 1,35 and 36.
61. Housing Statistics, Ibid. tables 51 and 53.
62. Housing Statistics, Ibid. table 5
63. Housing Statistics, Ibid tables 6 and 8.

64. Entwistle, A. and Reiners, W.J. National Building Studies Report 28, B.R.S. 1958. p.3.
65. Gray, H., op. cit. p.56.
66. Nobay, A.R. Short Term Forecasting of Housing Investment, N.I.E.S.R. Economic Review, August, 1967. p.80,83.
67. Housing Statistics, op. cit., table 6.
68. Nobay, A.R., op. cit, p.84.
69. Written Answer, Hansard, House of Commons, 24th January, 1967.
70. Housing Statistics, op. cit., table 14.
71. Housing Statistics, op. cit., table 15.
72. Housing Statistics, op. cit., table 20.
73. Carter, C.F. The Structure of British Industry, Cambridge University Press, 1961. p.274.
74. Ian Nairn, Spec Built, Architectural Review, February, 1959 p.163-169.
75. Furneaux-Jordan, R. Span - The Spec Builder as Patron of Modern Architecture, Architectural Review, February, 1959. p.109-120.
76. Lyons, E. Private Housing, R.I.B.A. Journal, May, 1958. p.223.
77. Housing File (Sfb 98), Architecture Research Unit Library, Edinburgh University, 1969.
78. Pennance, F.G. and Gray, H. Choice in Housing, I.E.A. Research Report, 1968. table 15.
79. Housing Problems, Priorities and Preferences, Opinion Research Centre, 1968. p.3-7.
80. Cowburn, W. Housing in a Consumer Society, Architectural Review, November, 1967. p.398.
81. Rapaport, A. The Personal Element in Housing, R.I.B.A. Journal, July, 1968. p.300.
82. Cowburn, W. Housing Choice and Design, Baumiester, June, 1968. p.2-4.
83. Dennis, N. Social Change in Housing, Lecture to the Newcastle Housing Conference, 1967.
84. Shankland, Cox and Associates, Private Housing in London Wates Ltd., 1969. p.69,74.

85. National House Builders Registration Council Conference, Private Housebuilding in Scotland, Aviemore, November, 1969
86. Mansfield, D.M.S., Marketing, N.H.B.R.C. Conference Paper, November, 1969. p.1-3.
87. Franklin, N., From Estate to Environment, Architects Journal, 15th May, 1969. p.1122.
88. Attenburrow, J., Some Impressions of the Private Sector of the Housing Market, B.R.S. Current Paper 57/68, 1968.
89. Ibid. p.9.
90. Ibid. p.10.
91. Bilsby, E., Needs -of the Future in the Private Sector, Architects Journal, 15th May, 1968. p.1109.
92. Ministry of Housing and Local Government, The Housing Programme 1965-1970. H.M.S.O. 1965. p.7.
93. Registered Housebuilders Handbook. N.H.B.R.C. 1967.
94. Attenburrow, J., op.cit. p.10,11.
95. Whittingham, W.T. The Case Against Orthodox Radburn, The Housebuilder, March, 1969. p.151.
96. Ludovici, J.V., Diverse Needs and the Role of Private Enterprise In Meeting Them. Housing Centre Conference Paper, 3rd session, July, 1968. p.145-147.
97. Ministry of Housing and Local Government, Homes for Today and Tomorrow, H.M.S.O. 1961. p.1.
98. Attenburrow, J., op.cit. p.11-12.
99. Merrett, A.J. and Sykes, A., Housing, Finance and Development, Longmans 1965. p.1.
100. Fifth Report of the Housing Corporation, H.M.S.O. 1969 p.1-6.
101. Greve, J., The Housing Problem, Fabian Research Series 224, The Fabian Society 1961. p.36-26.
- Waddilore, L.E., Housing Associations, P.E.P. Report, Planning, Volume XXVIII, No.462, May, 1962. p.1,15,19.
- Donnison, D.V., Housing Policy - What of the Future? Housing Vol.23, No.3, December, 1961. p.32.
- Cullingworth, J.B., Housing and Local Government in England and Wales, Allen and Unwin, 1965. p.238.
- Campbell, H., Housing Co-ops and Local Authorities, The Co-operative Party, 1961. p.12-14.

102. Campbell, H., op.cit. p.21.
103. Annual Reports of the Housing Corporation. H.M.S.O. p.3-3.
104. Ashworth, H., Interview in Birmingham Post, 7th July 1969. p.6,
105. Campbell, H., Co-operative Housing in Britain, Public and Co-operative Enterprise, Paper No.2, January 1970. p.17.
106. Greve, J. op.cit. p.26.
107. Architecture Research Unit, Flaxman Road, A.R.U. Report 1967.
108. Perring, M., Report to C.H.A.C., N.B.A. Unpublished Report 1969.p.2.
109. Ibid. p.4-5
110. Ibid p.7.
111. Parkes, M. Housing, The Ryde. A.J. 12th october, 1968,p.916.
112. Housing Corporation. Op. Cit. P.9.
113. Lundevall, O., Swedish Housing Market, Hyresgasternas A.B. 1967.p.17.
114. Campbell, H., op.cit. p.22.
115. Gilmour, A., Council Housing and Co-operative Ownership. A.R.U. Report, University of Edinburgh, 1969. p.26-28.
116. R.I.B.A., The Handbook of Management and Practice Part 3220 R.I.B.A.
117. Alexander, C., Notes on the Synthesis of Form, Harvard University Press, 1964. p.3-5.
118. Klein, A., Problemedes Bauen, Potsdam, 1928. p.36-48.
119. Bjorkto, R., Evaaluating the Usefulness of Dwellings. N.B.R.S. 1967 p.2-17.
120. An Appraisal Method for Measuring the Quality of Housing. American Public Health Association, New York, 1946.
121. Quality of Dwellings and Housing Areas. N.S.I.B.R. 1967. p.31.
122. Central Office of Information, The Social Survey. H.M.S.O. 1962 Ministry of Housing and Local Government. Old Houses into New Homes Cmd.3602. H.M.S.O. 1968.

123. Ministry of Housing and Local Government, Housing, The Home In Its Setting, Architects Journal, 11th September, 1968. p.494-497.
124. Ministry of Housing and Local Government, Family Houses at West Ham, H.M.S.O. 1969.
125. Architecture Research Unit, Courtyard Houses, Inchview Prestonpans, University of Edinburgh, 1966, and also Privacy and Courtyard Housing, University of Edinburgh, 1968.
126. Shankland, Cox and Associates, Private Housing in London, Wates Ltd., 1969. p7,45-72.
Sachs, H., Private Estates as Communities, Sociological Research Unit, University College, London, 1969. p.32-39.
127. Ministry of Housing and Local Government, op.cit.p.496.
128. Cox, O., Professional Obsolescence, Arena, June, 1966 p.35-37.
129. Alexander, C., op.cit. p.1-2.
130. Bullivant, D., Information for the Architect, Architects Journal, April, 1959. p.630-635.
131. Jones, J.C., and Thornley, D.G. Conference of Design Methods, Pergamon Press, 1962, see also
Gregory, S.A., Design Method, Butterworth, 1967.
132. Markus, T., The Role of Building Performance, Measurement and Appraisal in Design Method, Architects Journal, 20th December, 1967.p.1567.
133. Crofts, P.F., Housing Intelligence Project. First Report of a Research Project, University of Edinburgh, 1968.
134. Asimow, M., Introduction to Design, Prentice Hall, 1962, see also
Levin, P., Decision Making in Urban Design, B.R.S. C.P.49, 1966.
135. Crofts, P.F., op.cit. p.8.
136. Brighton Conference 1967, R.I.B.A. Journal, August, 1967. p.319-340.
137. Lewis, W., What is Required by the User, R.I.B.A. Journal, February, 1967. p.67.
138. Cox, O., Implications for the Architect, R.I.B.A. Journal, February, 1967. p.72.
139. Manning, P., Human Consequences of Building Design Decisions Architects Journal, December 29th, 1965. p.1577-1580.
140. Manning, P., Office Design, University of Liverpool, 1965.

141. Markus, T., The Role of Building Performance, Measurement and Appraisal in Design Method, Architects Journal, 20th December, 1967. p.1570.
142. Llewelyn-Davies, R., Town Design, Town Planning Review, October, 1966. p.157-172.
143. Franklin, M., Washington: New Town to Revive Old Area, Architects Journal, March 1st, 1967. p.526.
144. Ministry of Housing and Local Government, op.cit.
145. Architecture Research Unit, op.cit.
146. Dick, K., Housing Conference Report, 1962, R.I.B.A., 1962. p.76-77.
147. 1966 Stevenage Traffic Survey, Stevenage Development Corporation, 1967 p.17, 34-36.
148. Miller, A. and Cook, J., Radburn Estates Revisited: A Report of a User Study, Architects Journal, 1st November, 1967. p.1075.
149. Miller, A., Curtis, M.C. and Cook, J., Radburn Layouts Urban Planning Research Symposium. B.R.S. 1965. p.57-72.
150. Miller, A. and Cook, J., op.cit. p.1077.
151. Ministry of Housing and Local Government, Woodway Lane, Coventry: Interim Report, Ministry of Housing and Local Government, 1968. p.5, 24.
152. Ministry of Housing and Local Government, Children's Outdoor Activities on Three Medium Density Estates, Ministry of Housing and Local Government, 1968.
153. Cook, J., Gardens on Housing Estates, Town Planning Review, October, 1968 p.217.
-

ADDITIONAL SOURCES CONSULTED.

- Abrams, C., Housing in the Modern World, Faber and Faber, 1964.
- Alderson, S., Britain in the Sixties - Housing, Penguin Books, 1962.
- Allaun, F., Heartbreak Housing, Zenith Books, Hodder & Stoughton, 1968.
- Ashworth, W., The Genesis of Modern British Town Planning, Routledge, 1954.
- Asimow, M., Introduction to Design, Prentice Hall, 1962

- Barker, E., Housing and Community, Church Information Office, 1963.
- Barr, A.W., Cleeve, Public Authority Housing, Batsford, 1958.
- Beazley, E., Designed to Live In, Allen and Unwin, 1962.
- Bowley, M., Housing and the State, Allen and Unwin, 1944.
- Brenikor, P., Homes and Factories, Architects Journal, 31st January, 1968.
- Broady, M., Social Theory in Architectural Design, Arena, January, 1966.
- Builder (the), The Building Industry ... 1962 Onward, London, 1962.
- Burns, W., New Towns for Old, L.Hill, 1963.
- Central Housing Advisory Committee, Living in Flats, H.M.S.O. 1952.
- Central Housing Advisory Committee, The Appearance of Housing Estates, H.M.S.O. 1948.
- Central Housing Advisory Committee, Design of Dwellings, (Dudley Report), H.M.S.O. 1944.
- Central Housing Advisory Committee, Homes for Today and Tomorrow, (Parker Morris Report), H.M.S.O. 1961.
- Central Housing Advisory Committee, Councils and their Houses, H.M.S.O. 1959.
- Central Office of Information, Social Services in Britain, Reference Pamphlet No.3, H.M.S.O. 1966.
- Central Office of Information, Housing in Britain, Reference Pamphlet No.41, H.M.S.O. 1960.
- Central Office of Information, The New Towns of Britain, Information Reference Pamphlet No.44, H.M.S.O. 1969.
- Chermayeff, S., and Alexander, C., Community and Privacy, Penguin Books, 1963.
- Clark, C., Can We Afford to Take More Land for Urban Development, Architects Journal, 21st February, 1968.
- Clarke, J.J., The Gist of Planning Law, Macmillan, 1964.
- Co-operative Permanent Building Society, Who Buys Houses? Occasional Bulletin No.38, July, 1960.

Cullingworth, J.B., Housing Needs and Planning Policy, Routledge, 1960.

Cullingworth, J.B., Housing and Local Government, Allen and Unwin, 1966.

Cullingworth, J.B., Housing in Transition, Heinemann, 1963.

Cullingworth, J.B., English Housing Trends, Occasional Papers on Social Administration, No.13, Bell, 1965.

Cullingworth, J.B., Owner-occupation in Scotland and in England and Wales: a comparative study, N.H.B.R.C. (Scotland) Research Report, 1969.

Cullingworth, J.B., Town and Country Planning in England and Wales (new town and county hall), Allen and Unwin, 1964.

Cullingworth, J.B., A Profile of Glasgow Housing, 1965, Oliver and Boyd, 1968.

Culpin, C., Diversity in Housing: The Designers Approach, Housing Review, Vol.17, No.5, The Housing Centre, 1968.

Department of Economic Affairs, The National Plan, Cmd. 2764, H.M.S.O. 1965.

Donnison, D.V., Housing Policy Since the War, Occasional Papers on Social Administration, No.1, Codicote Press, Welwyn, 1960.

Donnison, D.V., et al, Essays on Housing, Occasional Papers on Social Administration, No.9, Codicote Press, Welwyn, 1964.

Donnison, D.V., Housing Policy - What of the Future? Housing, Vol.23, No.3, December, 1961.

Donnison, D.V., The Next Step in Housing Policy, Housing Review, Vol.14, No.6, November-December, 1965.

Donnison, D.V., Do We Have a Housing Programme, Architects Journal, 2nd August, 1967.

Donnison, D.V., The Movement of Households in England and Wales, Journal of the Royal Statistical Society, series A, (General) Vol.124, Part 1, 1964.

Economic Commission for Europe, European Rent Policies, United Nations, 1953.

Economic Commission for Europe, Financing of Housing in Europe, United Nations, 1958.

Economic Commission for Europe, Major Long Term Problems of Government Housing and Related Policies, United Nations, 1966.

Economic Commission for Europe, A Statistical Survey of the Housing Situation in European Countries Around 1967, United Nations, 1965.

Economic Commission for Europe, Cost, Repetition and Maintenance: Related Aspects of Building Prices, United Nations, 1963.

Elsas, M.J., Housing Before the War and After, Staples, second edition, 1945.

Eversley, D., Life, Lesiure and Houses, Architects Journal, 29th November, 1967.

Grafton, P.W., Building - The Emerging Pattern, The Builder, No.6238, 7th December, 1962.

Green, R., The Architect's Guide to Running a Job", Architectural Press, 1962

Guardian (The), The Package Deal, and correspondence following, 28th January, 1st/14th/18th/20th February, 1963.

Hancock, T., A Time for Commitment, Town and Country Planning, August 1969, Town and Country Planning Association.

Harvey, A., Tenants in Danger, Penguin Books, 1964.

Higgin, G., and Jessop, N., Communications in the Building Industry, Tavistock Publications, 1965.

Hole, V., Housing Standards and Social Trends, Urban Studies, Vol.2. No.2, November, 1965.

Housing Centre, Report on the Conference on "Housing to Let and for Co-ownership" Housing Review, Vol.XIV, July-August, 1965.

Housing Centre, Report on the Conference on "Housings Third Arm" Housing Review, Vol.XI, May-June, 1962.

Howes, E.G., Housing in Britain, France and Western Germany Planning Broadsheet, No.490, P.E.P., 1965.

Institute of Builders, Management Studies for the Building Industry, London, 1959.

Jackson, W.E., Local Government in England and Wales, Penguin Books, 1966.

Jephcott, P., A Troubled Area: Notes on Notting Hill, Faber, 1964.

Jones, F., New Building or Rehabilitation: Financial Influences, Architects Journal, 20th September, 1967.

Jones, F., 500 Thou: Implications of a Housing Policy, Architects Journal, 5th July, 1967.

Jones, F., What Do We Mean By Housing, Architects Journal, 16th August, 1967.

Jones, F., Symbol and Reality, Architects Journal, 4th October, 1967.

Jones, F., House Shape and Household Form, Architects Journal, 13th September, 1967.

Jones, I.E., Building by Direct Labour, Federated Employers Press, London, undated.

Kelly, B., Design and the Production of Houses, McGraw-Hill, 1959.

Kerr, M., The People of Ship Street, Routledge & Kegan Paul, 1960.

Kuper, L., et al, Living in Towns, Cresset Press, 1953.

Lea, F.M., The Building Industry in an Expanding Economy, R.I.B.A. Journal, Vol.69, No.7, July, 1962.

Martin, D.B., The Housing Market, C.E.S.-W.P.-28.

Merrett, A.J., and Sykes, A., Housing Finance and Development, Longmans, 1965.

Ministry of Health, Housing Manual, 1949, H.M.S.O. 1949.

Ministry of Health, The Cost of House Building, (Girdwood Reports), First Report, 1948; Second Report, 1950; Third Report, 1952, H.M.S.O.

Ministry of Health and Ministry of Works, Housing Manual, 1944, H.M.S.O. 1944.

Ministry of Housing and Local Government, Space in the Home, Design Bulletin, No.6, H.M.S.O. 1963.

Ministry of Housing and Local Government, Report of the Committee on Housing in Greater London, (Milner Holland Report), Cmd.2605, H.M.S.O. 1965.

Ministry of Housing and Local Government, Housing, Cmd.2050, H.M.S.O. 1963.

Ministry of Housing and Local Government, Housing in England and Wales, Cmd. 1920, H.M.S.O. 1961.

- Ministry of Housing and Local Government, Flats and Houses 1958, H.M.S.O. 1958.
- Ministry of Housing and Local Government, The Density of Residential Areas, H.M.S.O. 1952.
- Ministry of Housing and Local Government, Houses 1952, H.M.S.O. 1952.
- Ministry of Housing and Local Government, Houses 1953, H.M.S.O. 1953.
- Ministry of Housing and Local Government, Circular No. 13/62, Homes for Today and Tomorrow, H.M.S.O. 1962.
- Ministry of Housing and Local Government, Circular No. 41/64, Housing Act, 1964, H.M.S.O. 1964.
- Ministry of Housing and Local Government, Old Houses into New Homes. Cmd. 3602, H.M.S.O. 1968.
- Ministry of Housing and Local Government, Annual Reports, H.M.S.O.
- Ministry of Housing and Local Government, Housing Returns, H.M.S.O., Quarterly.
- Ministry of Housing and Local Government, Moving from the Slums, H.M.S.O. 1956.
- Ministry of Housing and Local Government, The Ownership and Management of Housing in the New Towns, H.M.S.O. 1968
- Ministry of Housing and Local Government, Land Use and Densities in Traffic Separated Housing Layouts, Urban Planning Directorate, M.H.L.G. 1968.
- Ministry of Housing and Local Government, Housing Studies: Desk Appraisals, Architects Journal, 11th June, 1969
- Morris, R.N., Mogley, G., The Sociology of Housing, Routledge & Kegan Paul, 1965.
- National Federation of Housing Societies, Housing Associations and Societies, 1964.
- National Old People's Welfare Council, A Short Guide to Social Survey Methods, National Council of Social Service, 1967.
- National Swedish Institute for Building Research, Quality of Dwellings and Housing Areas, Report 27, 1967.
- Needleman, L., The Economics of Housing, Staples Press, London, 1965.

- Nevitt, A.A., (editor), The Economic Problems of Housing, Macmillan, 1967.
- Nevitt, A.A., Housing, Taxation and Subsidies, Thomas Nelson Ltd., 1966.
- Nevitt, A.A., Finance and Housing Decisions, Architects Journal, 9th August, 1967.
- Nisbet, J., The Role of the Quantity Surveyor During the Design Stage, The Chartered Surveyor, Vol.92, No.1, July, 1959.
- Orr, S.C., & Cullingworth, J. B., (editors), Regional and Urban Studies, Allen and Unwin, 1969
- Parry Lewis, J., What Kind of Housing Programme Do We Need, Housing Review, Vol.16, No.5, 1967.
- Pennance, F.G., The Political Economy of Housing, Hobart Paper, Institute of Economic Affairs, 1968.
- Pennance, F.G., & Gray, H., Housing Shortage: Fact or Fiction? Building, 17th March, 1967.
- Pennance, F.G., & Gray, H., Choice in Housing, Institute of Economic Affairs, Research Report, 1968.
- Pennance, F.G., & West, W.A., Housing Market Analysis and Policy, Hobart Paper No.48, Institute of Economic Affairs, 1969.
- Power, Norman S., The Forgotten People, Arthur James Ltd., 1965.
- Redfern, G., New Towns Today and Tomorrow, The Public Works and Municipal Services Congress, 1969.
- Rich, P., Notes on Low Rise High Density Housing, Arena, March, 1966.
- Robertson, C.C., The Right Housing, New Society, 17th November, 1966.
- Rose, H., The Housing Problem, Heinemann Educational Books, 1968.
- Rowles R.J.(editor), Housing Management, Pitman, 1959.
- R.I.B.A., The Architect and His Office, London, 1962.
- Scottish Development Department, Report for 1966, Cmd.3279, H.M.S.O. 1967.
- Senior, D., Your Architect, Hodder and Stoughton, 1964.

Sharp, E., The Ministry of Housing and Local Government, Allen and Unwin, 1969.

Stephan, F.F., and McCarthy, P.J., Sampling Opinions, John Wiley & Sons, Inc., New York, 1963.

Stone, P.A., Building Economy, Pergamon Press, 1966.

Tavistock Institute, Interdependence and Uncertainty - A Study of the Building Industry, Tavistock Publications, 1966.

Taylor, C.W., & Barron, F., (editors), Scientific Creativity, John Wiley and Sons, Inc., New York, 1963.

Turner, J., Designing for Obsolescence, Architects Journal, 18th October, 1967.

Waddilove, L.E., Housing Associations, P.E.P. Planning, Vol.27, No.462, May, 1962.

Walkden, A.H., The Estimation of Future Numbers of Private Householders in England and Wales, Population Studies, Vol.15, No.2, November, 1961.

White Paper, House Purchase: Proposed Government Scheme, Cmd.571, H.M.S.O. 1958.

Willis, J., Population Growth and Movement, C.E.S.-W.P.-12.

Willmott, P., & Young, M., Family and Class in a London Suburb, Routledge and Kegan Paul, 1960.

Wilson, A.G., Models in Urban Planning: A Synoptic Review of Recent Literature, C.E.S.-W.P.-3.

Wilson, R., Difficult Housing Estates, Tavistock Pamphlet No. 5, Tavistock Publications, 1963.

Wiseman, H.V., Local Government at Work, Routledge, Kegan and Paul, 1967.

World Health Organisation, Appraisal of the Hygienic Quality of Housing and its Environment, Technical Report Series, No.353, W.H.O. 1967.